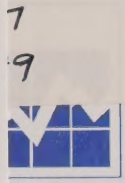


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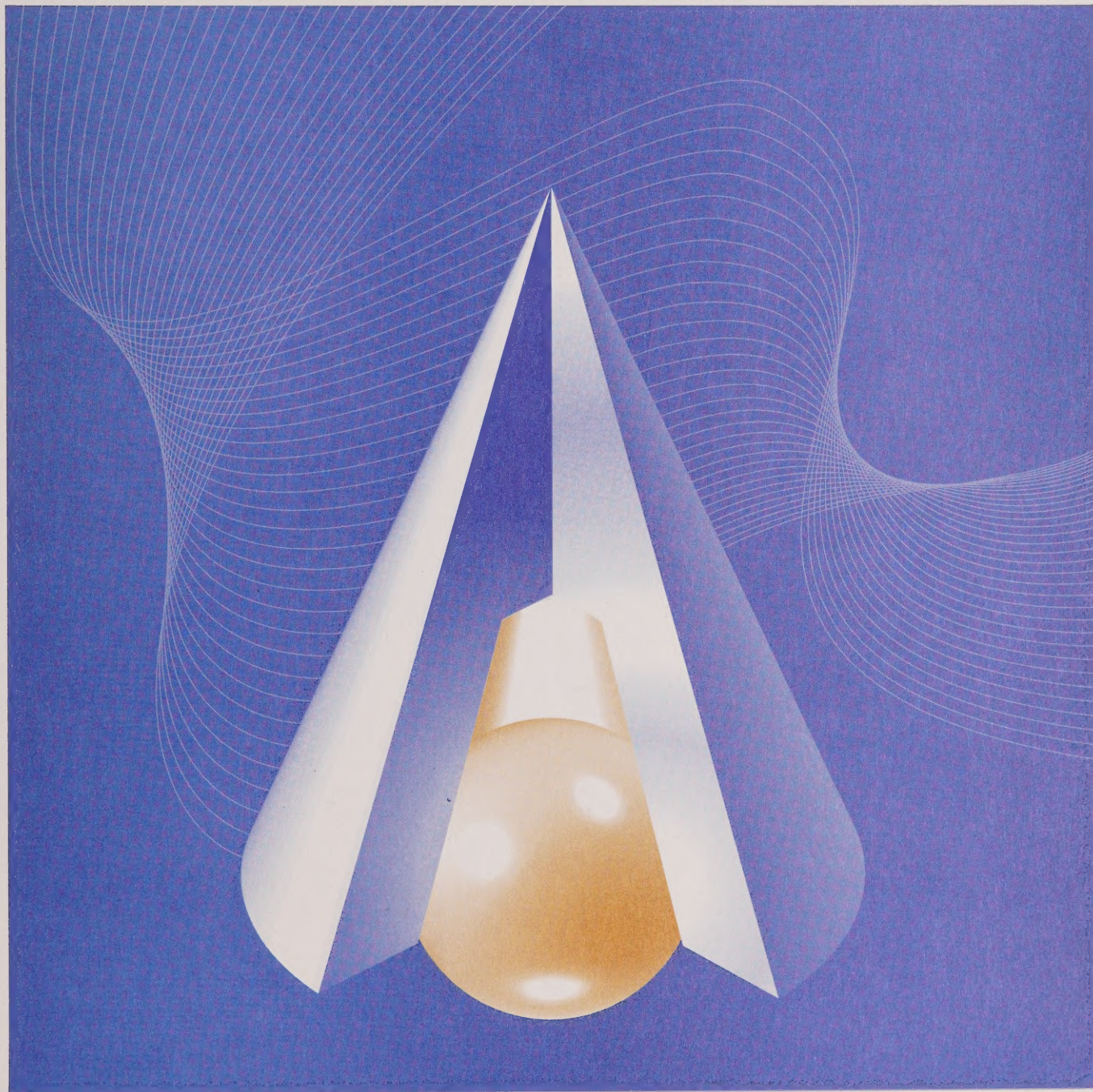
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## *International Mobility: A Longitudinal Analysis of the Effects on Individuals' Earnings*

by Ross Finnie

No. 289



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# **International Mobility: A Longitudinal Analysis of the Effects on Individuals' Earnings**

by

**Ross Finnie\***

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## **Abstract**

The degree to which workers leave the country was a much-discussed issue in Canada—as elsewhere—in the latter part of the 1990s, although recent empirical evidence shows that it was not such a widespread phenomenon after all, and that rates of leaving have declined substantially in recent years. One aspect of the international mobility dynamic that has not yet been addressed, however, is the effect on individuals' earnings of leaving the country and then returning. The lack of empirical evidence on this issue stems principally from the unavailability of the kind of longitudinal data required for such an analysis. The contribution of this paper is to present evidence on how leaving and returning to Canada affects individuals' earnings based on an analysis carried out with the Longitudinal Administrative Database. The models estimated use movers' (relative) pre-departure profiles as the basis of comparison for their post-return (relative) earnings patterns in order to control for any pre-existing differences in the earnings profiles of movers and non-movers (while also controlling for other factors that affect individuals' earnings at any point in time).

Overall, those who leave the country have higher earnings than non-movers upon their returns, but most of these differences were already present in the pre-departure period. In terms of net earnings *growth*, individuals who were away for two to five years appear to do best, and enjoy earnings that are 12% higher in the five years following their return relative to their pre-departure levels (controlling for other factors), while those who leave for just one year have smaller gains, and those who spend longer periods abroad have lower (relative) earnings upon their returns as compared to before leaving (perhaps due to other events associated with their mobility patterns). Interestingly, these gains seem to be concentrated among those who had the lowest pre-move earnings levels (less than \$60,000), while those higher up on the earnings ladder had smaller and more variable gains.

**Keywords:** brain drain, international migration, international migration and individuals' earnings



## ***Executive summary***

The “brain drain”, a much-discussed issue in the late 1990s, has largely faded from public and academic discussions, perhaps largely because recent evidence indicates that the overall number of Canadians leaving the country in any given year is relatively low (on the order of one tenth of 1% of the population in any given year) and is not necessarily as concentrated at the top of the occupation scale or in certain sectors as previously conjectured.

Using Statistics Canada’s Longitudinal Administrative Database (LAD), constructed from individuals’ tax records, this paper begins by reporting more up-to-date data on the rates of leaving, as well as of return. The main body of the paper then presents new evidence on one aspect of this dynamic that has not previously been studied: the effects on earnings of leaving the country and then returning. The analysis is restricted to men, largely because findings were much less conclusive for women. The first year of data in the LAD is 1982, and the file ran through 2003 when this work began, thus determining the period covered by the analysis.

The analysis finds that annual rates of departure from Canada from 1982 to 2003 have been generally low in historical terms (on the order of one tenth of 1% of the population in any given year), and tend to follow the economic cycle, but far from perfectly. Departures thus declined through most of the 1980s but then began to rise in 1988 and rose steadily through the first part of the 1990s, when the economy was stuck in a lingering recession. Rates then rose more slowly, to peak in 2000, after which they declined sharply through to the end of the data in 2003, falling 45% over this period.

Over the entire period, about 3.5% of those who left returned after one year, these rates then rising to 4.7% in the second year, and then declining thereafter, with about 16.2% of those who left having returned to Canada by five years later.

The analysis of the earnings effects exploits the LAD’s capacity to allow the comparison of individuals’ earnings before leaving versus after their return, and among individuals who left and returned against those who did not. That is, the study basically looks at the relative growth in earnings of those who left and came back as compared to those who never left. Such an analysis has not previously been possible with other databases.

Various models are estimated, but the preferred results indicate that, overall, those who left the country for two to five years did best in terms of their subsequent earnings levels: their post-return earnings were 12% higher in their first five years back as compared to their last five years before leaving. Those who left for only one year showed a more moderate 7% increase in their relative earnings on average, and this estimate is not (statistically) significantly different from zero, indicating that these changes varied significantly across experiences. Those who were away six years or more were found to actually have lower earnings after their returns than otherwise might have been expected, but these patterns varied significantly and might well be due to particular events related to the return (e.g., moving into retirement).

All measured effects take into account pre-move earnings levels and the normal growth in earnings that occurs with age, along with other factors that can affect earnings (e.g., marital status, province and area size of residence, the unemployment rate).



Concerns regarding emigration from Canada typically focus on workers at higher skill or occupation levels. As the LAD lacks these measures, individuals are classified into one of three categories according to their earnings in the last full year before leaving: earnings less than \$60,000, from \$60,000 to \$100,000, and greater than \$100,000. The data indicate, perhaps surprisingly, that it was those individuals at the lowest earnings levels who left the country that experienced the greatest (relative) growth in their earnings upon their returns, while those at higher earnings levels experienced more moderate gains.

## I. Introduction

The degree to which workers leave the country was a much-discussed issue in the latter part of the 1990s and at the beginning of the new millennium. The issue seems to have faded from public (and academic) discussions to a substantial degree since then, however, perhaps at least partly because recent empirical evidence has revealed that the overall numbers of Canadians leaving the country in any given year is relatively low (around one-tenth of 1% of the population), and not necessarily as concentrated at the top of the occupation scale or in certain sectors as had been suggested.<sup>1</sup> It would furthermore appear that the allegedly inexorable rise in the numbers of Canadians leaving the country in the 1990s has not only stalled, but even significantly reversed, especially since about 2000.<sup>2</sup>

But although the empirical evidence on the rates of individuals leaving the country (and returning) has been accumulating, one aspect that has not yet been treated is the effects on individuals' earnings of leaving the country and then returning to it.

Do those who leave and then return to Canada earn an earnings premium for doing so? Do they arrive back with higher earnings levels, or on steeper earnings profiles (i.e., higher earnings growth rates) than would have been the case had they never left? Otherwise put, is spending time out of the country generally a good career investment?

While there exists much anecdotal hearsay, there is so far (at least to this author's awareness) no hard evidence on the issue—and the matter is an important one. Any finding in the affirmative might indicate that after living abroad, individuals come back to Canada relatively more productive than before they left, and this would have implications for the general dynamism of the Canadian economy as well as the economic well-being of the specific individuals in question. In fact, as Globerman (2000, 1999) has suggested, such a finding might even change our general view of the whole emigration-return dynamic: if substantial numbers of those who leave eventually come back, and if their sojourns out of the country typically lead to increased productivity (and higher earnings) after their return, such a mobility dynamic might be something to worry less about—or even to be encouraged, at least among some groups of workers.

The basic idea is simple. While out of the country, individuals might gain superior training and other kinds of work experience, develop new contacts, and enhance their productivity in other ways precisely because they are away. When they come back to Canada, *if* the conditions are suitable (i.e., the human capital and other advantages gained abroad are valued here), greater productivity should lead to higher earnings.

And even if there was no such productivity dynamic, finding that earnings rise for individuals who leave the country and then come back might help explain the flows that we do observe, predict what they may be in future years, and target any remedial policy actions deemed appropriate.

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1. See Finnie (2001, 2006) for a review of the recent empirical evidence and a set of new estimates based on the same Longitudinal Administrative Database dataset used in this paper. In contrast, Harris, Easton and Schmitt (2006) have recently published a set of essays on the topic which raise new concerns regarding the quantity and quality of out-flows, including those among certain specific sub-populations. See Harris and Lemieux (2005) and Helliwell (2005) for broader coverage of mobility and border effects on a range of issues relating to trade, productivity, labour markets, social policy, and more.

2. Finnie (2006) and below.



The lack of empirical evidence on this issue stems primarily from the unavailability of the kind of data required for such an analysis. The contribution of this paper is to exploit the unique strengths of Statistics Canada's Longitudinal Administrative Database (LAD), constructed from individuals' tax records, to present the results of an empirical analysis of how leaving Canada and then returning affects individuals' earnings (the analysis is restricted to men for the reasons explained below).

To estimate these effects, earnings profiles of those who leave and then return are compared to the profiles of those who do not leave, with movers' pre-departure (relative) profiles essentially used as the basis of comparison for their post-return (relative) profiles. Using this approach, differences that already existed in the earnings profiles of movers and non-movers before the moves of the former group are taken into account when assessing their later earnings patterns (i.e., movers may have *already* been on higher or steeper earnings profiles *before* departing). That is, the analysis basically compares the relative growth in earnings of those who left and came back against those who never left. Such an analysis has not previously been possible with other databases. Various specific models are estimated to implement this general approach.

The next section of the paper presents the estimation models, followed by a description of the LAD data and the samples used in the analysis, some descriptive statistics on the number of leavers and returners, and the earnings effects. The concluding section summarizes the major findings and some of their implications.

## II. The models

### II.1 Earnings levels

The estimation models used here are essentially standard human capital earnings functions adjusted to take into account the departure–return dynamic being focussed upon and the longitudinal data which are employed to that end. It may be expressed as follows:

$$(1) \ln(y_{it}) = X_{it}\theta_1 + f_{dur}(\beta_k(\tau - k) + \gamma_m(T + m)) + \varepsilon_{1it},$$

where  $\ln(y_{it})$  represents the natural log of the earnings of individual  $i$  in year  $t$ . The model is estimated for a pooled sample that includes both 'leavers-returners' and those who do not move. There is one person-year observation for each year an individual is observed in the data and passes the relevant selection criteria.<sup>3</sup>

The first set of variables, the  $X_{it}$ , are entered principally as controls, and include basic demographic characteristics (age, marital/family status, language spoken, immigrant status), place of residence (province/region and area size), the provincial unemployment rate, and a set of calendar year variables to further control for current economic conditions and other factors not otherwise captured in the model and which vary over time. The coefficients associated with these variables are denoted as  $\theta_1$ . No allowance is made for different relationships between any of these variables and moving. The moving effects are thus isolated on the move indicators themselves.

3. Standard errors are adjusted for the repeated observations on given individuals in different years.

The variables of focus here are those related to individuals who are observed to leave the country and then return. These consist of a set of dummy variables corresponding to the specific year of the longitudinal person-year records of such individuals. These terms are denoted as  $\tau - k$  for the years before the departure ( $\tau$  denoting the year the individual left the country), and  $T + m$  for the years after the return ( $T$  representing the year of return).  $\varepsilon_{lit}$  is a stochastic error term.

These variables essentially represent a detailed set of dummy variables indicating how the specific person-year observation for the mover in question corresponds to either a particular year prior to the individual's departure or a particular year after his return. These leave–return indicator variables are shown to be interacted with the number of years the individual spends out of the country, as represented by the  $f_{dur}$  term in Equation 1. This allows the pre-departure and post-return earnings patterns to vary with the number of years the person spends away.

The coefficients on these pre-departure and post-return variables are indicated by the  $\beta$  and  $\gamma$  terms in Equation 1. These represent vectors of coefficients that capture the differences in earnings levels in the pre-departure and post-return years for individuals who leave the country and then come back to it (for different numbers of years) as compared to the general population (i.e., non-movers).<sup>4</sup>

The models thus include one set of  $\beta$  parameters and one set of  $\gamma$  parameters for each duration—that is, the pre-departure and post-return years for each group of individuals defined with respect to the number of years they spent out of the country. Earnings profiles are in this way tracked backward from individuals' departures from the country and forward from their returns for those who were away one year, for those who were away two years, and so on. It is important to allow for such differences because earnings profiles may differ not just with respect to whether a person left and came back, but also according to the number of years spent away.

This specification makes for a rather large number of parameters to estimate, one for each year forward and each year backward for each duration. Remarkably, the LAD used here is more or less up to the task due to the large sample sizes of leavers-returners it provides.

The model could be made much simpler by imposing a specific functional form on the pre-departure and post-return earnings patterns (e.g., linear or quadratic), but at least initially it seems important to allow for the completely free functional form allowed for with the set of dummy variables used here, since it is difficult to know *a priori* what particular functional form (if any) might best suit the data.

After estimating such a fully disaggregated model, other more restricted models are estimated where individuals are grouped in terms of the number of years spent away and where certain periods before the departure and after the return are treated together in order to increase sample size for the identification of a reduced number of pre-departure and post-return parameters.

What is most important through all these specifications is that this model allows us to observe if individuals who left the country and then came back had higher (or lower) earnings relative to non-movers before leaving and/or after coming back. Of equal importance is that the pre-departure years

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4. The general comparison group also includes individuals who will leave and come back in later years, and individuals who left the country before they were observed to do so (i.e., before 1982, the year in which the LAD data were first collected) and then came back, but these numbers are small enough to not affect the fact that they are included in the vastly greater 'never moved' group which is the basis of the comparisons.

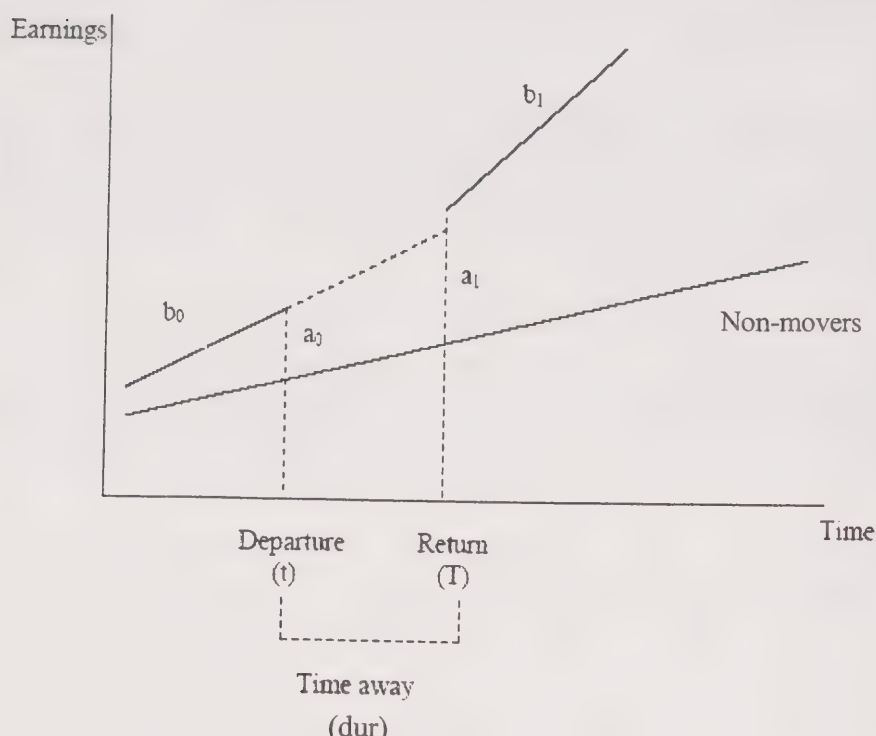


of movers are used as the control group for such individuals in their post-return period. It might well be, for example, that those who left and came back had higher earnings in their post-return years (i.e., a set of positive  $\gamma$  coefficients)—but this specification allows us to check the post-return profiles (the  $\gamma$  coefficients) against individuals' (relative) pre-departure levels (i.e., the  $\beta$  coefficients).

In short, even if the  $\gamma_m$  are in fact found to be greater than 0, this finding is only meaningful in terms of judging the effects of being away on individuals' earnings—as opposed to being higher for other reasons (i.e., unobservables not controlled for in the model)—if they are *even higher* in the post-return years than in the pre-departure years. Testing for the effects of leaving and coming back thus consists of comparing the  $\beta$  and  $\gamma$  sets of coefficients.

This specification also allows us to track individuals' earnings profiles on a precise year by year basis: one year before the departure, two years before, and so on backward in time; and one year after the return, two years after, and the other years after the return. This permits the identification of the *slopes* of earnings profiles as well as the levels. In the simple earnings level form of this first model, the former (i.e., the slopes in earnings profiles) can be deduced from the patterns of the latter (the levels) over time.

The following figure shows the relationships in question graphically:



Movers can be compared to non-movers in terms of their pre-departure and post-return earnings profiles. The controls included in the model (including age), can be thought of as tracing out a standard age-earnings profile, as indicated by the straight line shown here for non-movers (in practice it does not need to be linear, and non-linearities in age are in fact allowed for in the estimation). The  $a$  and  $b$  labels then indicate the different levels (the  $a$  terms) and slopes (the  $b$  terms) of those who leave the country and then return—both before and after the move—as compared to those who do not move.

If movers had higher earnings levels and steeper earnings increases over time than non-movers even before their moves, then the  $a_0$  and  $b_0$  terms shown in the figure would be positive. Using the notation of Equation (1), such a situation would correspond to a set of increasingly positive  $\beta$  coefficients on the pre-departure year indicators. If being away then had a positive effect on movers' profiles, this would be seen in the graphic as  $a_1 > a_0$  and  $b_1 > b_0$ , or increasingly higher coefficients on the  $\gamma_m$  terms in the earlier notation.

## II.2 A difference model

An alternative approach is to use a difference set-up which estimates the level (or 'shift') and slope effects of moving more directly:

$$(2) \ln(y_{it}) - \ln(y_{it-1}) = X_{it} \theta_2 + g_{dur}(\alpha_k(\tau - k) + \sigma_m(T + m)) + \varepsilon_{2it}$$

$$(3) \ln(y_{it}) - \ln(y_{it-1}) = h_{dur}(X_{it} \theta_3 + \delta_{mover}) + \varepsilon_{3it}.$$



Equation (2) represents the model by which the earnings' 'slope' effects are estimated directly. Individuals' year-to-year earnings growth ( $\ln(y_{it}) - \ln(y_{it-1})$ ) is specified to be a function of a general set of common  $X$  factors which apply equally to the general population and movers, plus an extra set of indicators which will pick up the differences in earnings growth both before leaving and after coming back for those who left the country and then returned to it. The set-up is thus similar to that of Equation (1), except that we are dealing with the changes in earnings instead of levels. If the  $\sigma$  terms are positive *and* generally larger than the  $\alpha$  terms, the growth profiles of leavers-returners are (relatively) steeper (again as compared to non-movers) before leaving the country, but *even steeper* after coming back than before the departure.

Equation (3) then identifies the 'shift' effects of moving, defined here as the change in earnings between the last full year in Canada and the first full year back. The model consists of estimating the change in earnings over the number of years away ( $dur$ ), with the  $\delta$  term capturing the earnings growth of those who left and returned as compared to non-movers. To implement this model, a separate regression is estimated for each of the different possible numbers of years individuals were away (one year, two years, etc.), represented by the  $h(dur)$  term. For movers, each specific model represents the change in log earnings corresponding to the period of time spanning the last year before leaving to the first full year back ( $\ln(y_{iT}) - \ln(y_{iT})$ )—each leaver-returner is included in one such model, depending on the number of years that person was away. Also included in these models are all the pair-wise combinations of non-movers across the same number of years ( $dur$ ).<sup>5</sup> In each regression, the  $\delta$  parameter identifies the difference in earnings growth between leavers-returners and non-movers over the relevant period of time. These models thus provide an alternative perspective of the shift effects implied by comparisons of the pre-departure and post-return slope effects represented in Equations (1) and (2).

### III. The data

#### III.1 The Longitudinal Administrative Database

The Longitudinal Administrative Database (LAD) is a 20% random sample of all Canadian tax filers (and non-filing spouses identified by tax filers) constructed from Canada Revenue Agency tax files. The LAD follows individuals longitudinally using their individual identifiers based on SINS (social insurance numbers) (SINS themselves are not recorded in the LAD in order to protect individual confidentiality) and matches individuals into family units on an annual basis, thus providing individual- and family-level information on incomes, taxes, and basic demographic characteristics in a dynamic framework.

Individuals are included in the LAD for all years they file tax forms and are excluded (only) for those years they do not. Individuals 'leave' the LAD more permanently if they stop filing tax forms, the principal reasons including death and leaving the country (see below). New individuals enter the LAD if they start filing tax forms, as is the case for young people and immigrants.

The first year data were collected for the LAD is 1982, and the file ran through 2003 when this work began, thus determining the period covered by this analysis.

5. That is, the change in movers' and non-movers' earnings are estimated across the same number of years.

The LAD is uniquely well-suited to the analysis undertaken here for a number of reasons. First, it is closely representative of the underlying adult population. Unlike some other countries, the rate of tax filing in Canada is very high across all income levels. Higher-income Canadians are required by law to file, while lower-income individuals have strong incentives to file in order to recover income tax and other payroll tax deductions made throughout the year and to receive various tax credits and other benefits (e.g., the National Child Benefit). The full set of annual tax files from which the LAD is constructed covers upwards of 95% of the target adult population (official population estimates), which compares favourably to survey-based data sets, and coverage is especially strong among the male working-age population used here.

Furthermore, given that most individuals file tax forms every year, attrition from the LAD is quite low, meaning that it remains representative on a longitudinal basis as well as cross-sectionally. This again contrasts with survey-based databases, which typically have problems in following individuals over time, *especially* those who move, potentially introducing sample bias to any study of mobility—and its effects on earnings—such as this one.<sup>6</sup>

A second major strength of the LAD is that its longitudinal nature and income tax basis allow for the identification of those individuals who leave the country, which is not generally possible in survey-based databases precisely because such identification requires tracking those individuals who are no longer in the country. Pertaining to an even greater challenge, the LAD also permits the identification of those who subsequently return to Canada, no matter how many years have passed, where they have been or what they have been doing in the meantime.

A third advantage is the massive sample size of the LAD, which allows the identification of leavers and returners in sufficient numbers to carry out a meaningful analysis of their earnings patterns. This again overcomes what is an impossible challenge for most general databases because relatively few individuals leave the country in any given year and even fewer return after that—even could such individuals be identified as such.

Fourth, the LAD's extended period of coverage, from 1982 to 2003, allows for the tracking of earnings profiles of individuals for relatively long periods of time both leading up to and following a departure abroad, and this up to the recent past.

Finally, the accuracy of the income information available on the LAD, measured on a current year basis (e.g., not retrospectively), is important to a study such as this one which is focused on earnings—and especially the change in earnings over time.

### **III.2 Sample selection and the move identifier**

Individuals are included in the analysis—movers and non-movers alike—in a given year if they were in the LAD in that year, if they were aged from 25 to 54 (again in that year) and had no missing data for the variables used in the analysis. The latter resulted in very few deletions because the relevant information is generally required, by law, to be provided on individuals' tax forms. Given the earnings basis of the analysis, individuals also had to have at least \$1,000 (2003 constant

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6. Atkinson, Bourguignon and Morrison (1992) and the Organization for Economic Co-operation and Development (1996) discuss the typically better coverage and lower attrition of administrative databases over survey databases. See Finnie (1998) for evidence on attrition from the LAD and the limited importance of attrition to interprovincial mobility.



dollars) in earnings in the year in question. Current full-time post-secondary students are deleted because of the special situation of this group and the labour market focus of the present study, thus leaving students to be better-treated in a separate analysis.<sup>7</sup> Individuals are included in the analysis in some years but not others, depending on whether or not they are actually in the LAD and whether they pass the other sample selection criteria for the year (or years) in question.

The identification that a person left Canada in a given year is made through the relevant declaration on individuals' tax forms. The place for such declarations is at the top of the first page of the tax form and is therefore not easily missed. There are, furthermore, significant incentives for individuals to make such declarations if the situation applies. First, most Canadians are eligible for tax refunds at year end, and this is especially true for those who leave the country because their annual incomes are not as high as their running (monthly) amounts would have indicated, leaving them in lower tax brackets than the ones that would have been used for their deductions—and hence eligible for greater refunds. Secondly, if an individual ever wants to return to Canada, even to visit, having one's tax matters cleanly dealt with in this way is of clear advantage.<sup>8</sup>

The definition of return is simply the obverse of the departure definition, and is indicated by an individual making the analogous tax form declaration of returning to Canada.

In the work presented here, the results are restricted to men. Models have been estimated for women, but generally do not perform as well—that is, the results are less clear. This is perhaps not surprising since women are still to a significant degree 'secondary workers'. Hence we would expect the related earnings effects to indeed be less pronounced.

### **III.3 The control variables**

As mentioned, the control variables included in the models first include a range of basic demographic characteristics. These are current age (captured by a series of dummy variables), family type (couple with children, couple with no children, unattached individual, single parent), province/region of residence, an indicator of being the member of a minority (official) language group (English in Quebec, French outside Quebec—thus leaving the province/region variables on their own to represent the majority language group in each jurisdiction),<sup>9</sup> and area size of residence (rural areas and small towns, smaller cities, larger cities).

Also included are the provincial unemployment rate to control for current economic conditions and a series of calendar-year dummy variables to capture any time trends (without imposing any functional form on those trends) and any other significant influences which operate at a national level, shift over time and are not otherwise captured by the variables included in the models.

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7. See, for example, Frank and Bélair (1999, 2000). Student status can be identified in the LAD using various education-related tax deductions.

8. See Finnie (2005) for an analysis of patterns of leaving and returning based on broader definitions of leaving and returning, including simply having a foreign mailing address (for tax purposes). The precise definition does not affect the main findings in any important way.

9. The only (general) language identifiers available on the LAD are English and French, defined by the language of the tax form used by the individual. Other linguistic minorities and other such related information are not available.

Finally, a set of variables identifying recent immigrants and the number of years since immigration are included. The re-emigration of immigrants and their earnings patterns could, of course, be a subject worthy of its own treatment, but that is left for a further project.<sup>10</sup>

#### ***IV. Raw departure and return rates***<sup>11</sup>

##### ***IV.1 Departure***

To place the earnings analysis which is the focus of this paper in context, some descriptive statistics of the rates of departure from and returning to Canada are first presented. Figure 1 (and its supporting table) show the annual rates of departure from Canada over the 1982-to-2003 period covered by the data. Overall, the rates are generally very low, ranging from a minimum of 0.042% in 1987 (i.e., under one half of one tenth of 1%) to a high of 0.15% in 2000 (about one and a half tenth of 1%).

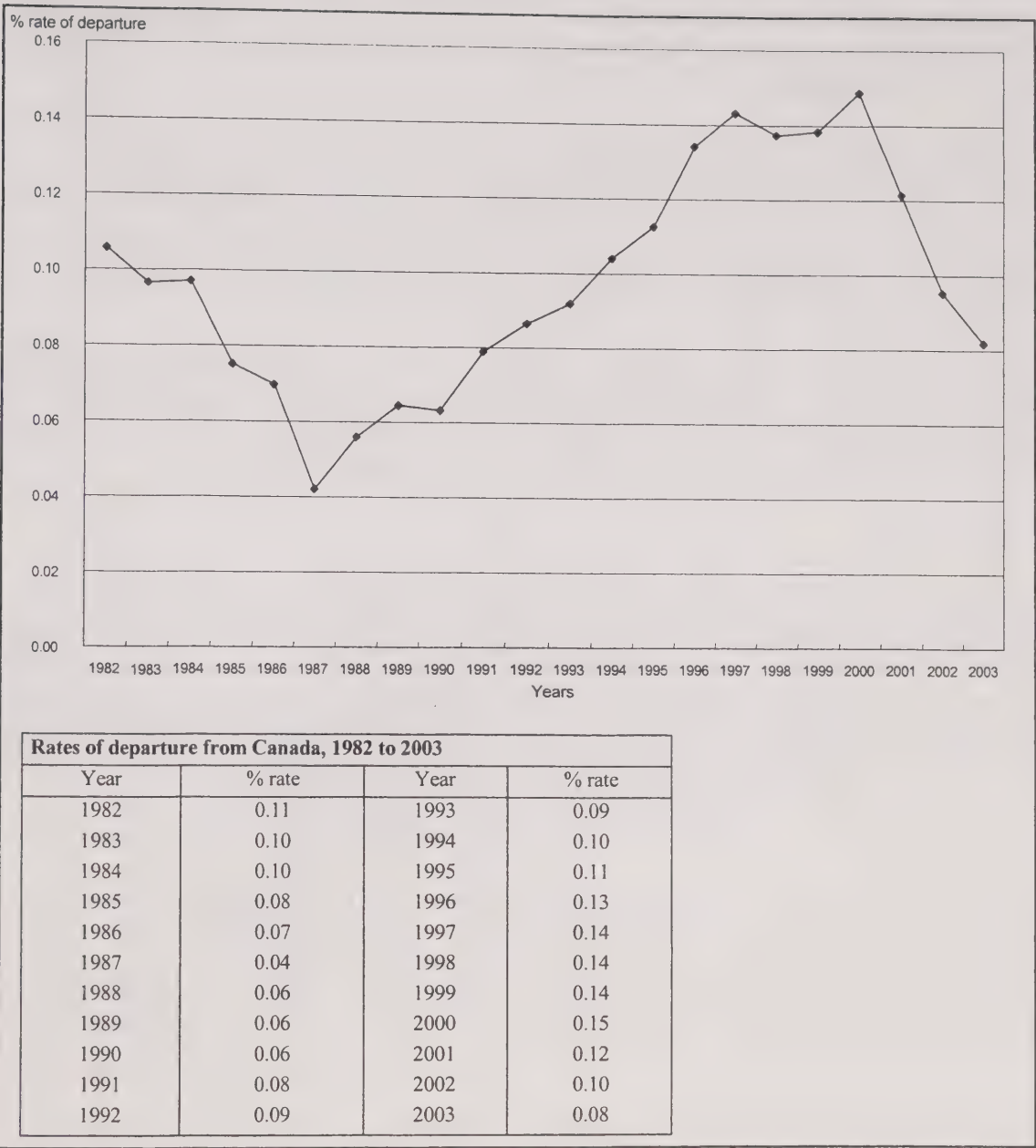
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10. The immigrant identifiers are taken from Citizenship and Immigration Canada's Immigration Database, which has recently been merged with the LAD and covers immigrants who arrived in Canada since 1980.

11. See Finnie (2006) for a more detailed treatment of the material presented in this section, which is essentially drawn from that other work.



Figure 1 Rates of departure from Canada, 1982 to 2003



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

These rates (and their related absolute numbers) generally correspond to other estimates in the literature for the years other data are available (Finnie, 2001). The data from the Longitudinal Administrative Database, however, represent an annual series using a consistent definition of departure which spans an extended period of time up to the relatively recent past such as cannot be found elsewhere.

The departure rates follow the economic cycle to a significant degree—but far from perfectly. The substantial declines which occurred through the mid-to-late 1980s correspond to the strong growth in the Canadian economy over that period, but the rates bottom out in 1987, whereas the economy

continued to grow through 1988 before beginning to stall at the end of 1989. Departures rose steadily (apart from 1990) through the first part of the 1990s, when the economy was stuck in a lingering deep recession, and continued to do so right through 1997, even though the Canadian economy began to recover quite strongly in 1996. After turning down in 1998, departure rates stalled in 1999, then edged up slightly again in 2000.

Sharp declines in departure rates then occurred from 2001 through 2003—in the absence of any correspondingly significant economic developments (i.e., the Canadian economy continued to grow as in previous years). The annual declines since 2000 in fact outstrip the substantial rises in rates seen through most of the 1990s—which were seen by some observers as harbingers of a kind of unstoppable trend towards further rises into the future. In short, what rose so dramatically in the 1990s subsequently declined in an even more pronounced fashion.

Departure rates have not, certainly, returned to their lows of the late 1980s—and the 2003 rates are approximately double the lowest earlier level. But they are also down 45% from their year 2000 highs, and the downward trend shows no sign of levelling off through the end of the data period covered—although speculation beyond that year is of course nothing more than that.

## **IV.2 Return**

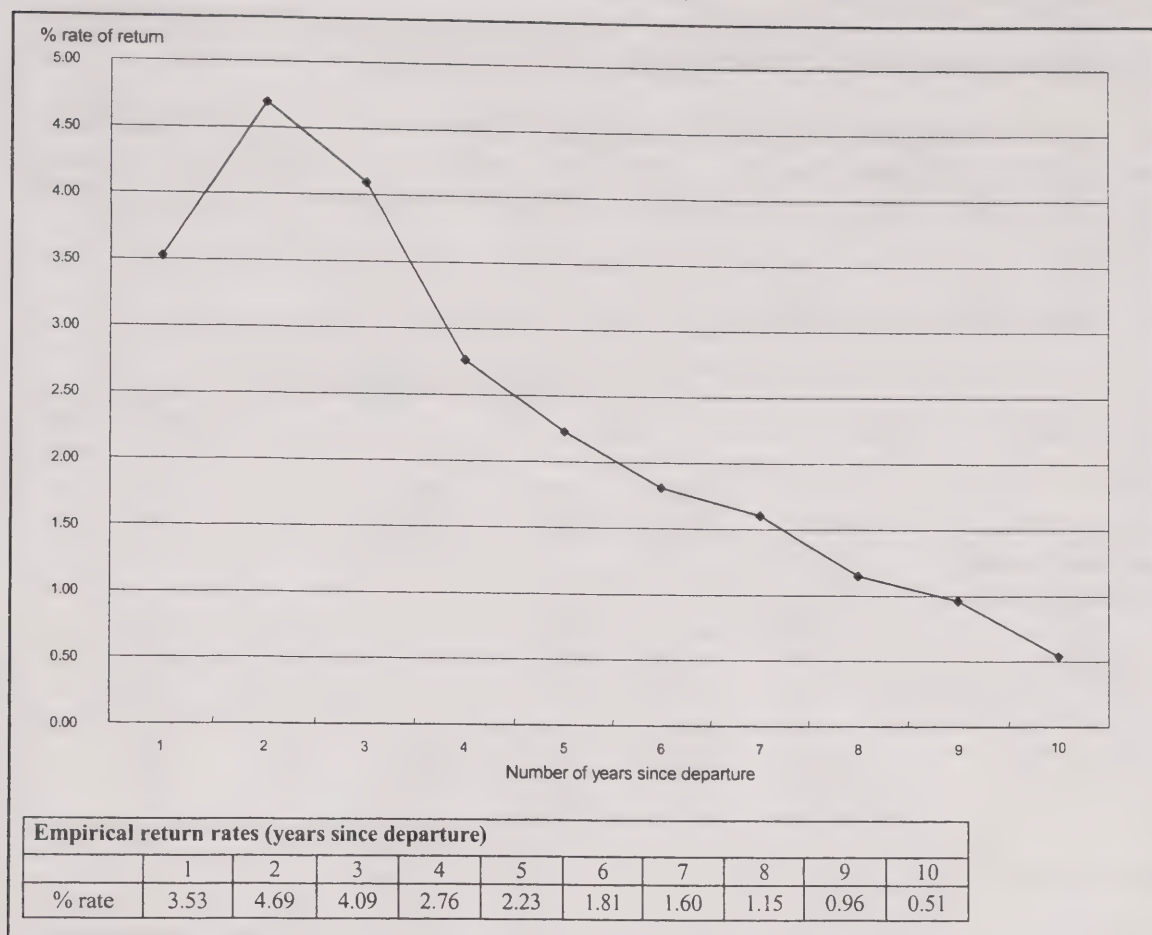
Figure 2 (and the supporting table there) shows the simple empirical hazard rates of return to Canada for those men observed to have left at any time over the period of the analysis. Interestingly, individuals are more likely to return after having been away two years rather than just one, but after this the rate of return declines steadily, taking the classic negatively sloped form of most empirical hazards. The rates vary from 3.5% in the first year to reach the maximum of 4.7% in the second year, and then decline to 4.1%, 2.8% and 2.3% over the following three years.<sup>12</sup>

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12. These empirical hazard rates are calculated in the conventional fashion as the percentage of individuals *still at risk* (in this case still deemed to be out of the country) who return in the year in question.



**Figure 2 Empirical return rates (years since departure)**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

One special feature of these hazard rates is that individuals are tracked over a period during which they are not actually observed in the data—when they are out of the country. This approach is legitimate, however, given the data employed, and facilitates the analysis in question because individuals *are* observed if and when they return to Canada—the event in question. In short, it is assumed that individuals are still out of the country (the spell in question) until a return is observed (indicating the end of that spell—the relevant transition).<sup>13</sup>

These hazard rates imply survivor rates (i.e., the percentage of individuals still out of the country) of 96.5%, 92.0%, 88.2%, 85.8%, and 83.8% over the first five years following a departure. Thus, after five years, 16.2% of those who had left had subsequently come back. These rates are fairly low, but represent an average over the whole period covered by the data, and return rates have risen in recent years, which is in some sense consistent with the recent decline in departures (Finnie, 2006).

13. Return rates need to be adjusted for the fact that individuals who die while out of the country would no longer be at risk of returning and should be censored at that point. This is done by applying age-specific mortality rates and censoring individuals' records at the time they are deemed to die by this probabilistic assignment. The principal findings are not, however, affected by this treatment.

## V. Earnings effects

### V.1 The basic earnings level model

Table 1 shows some summary statistics of the sample of leavers-returners used in the estimation of the earnings models. The table gives the number of such persons by the length of their absence plus the associated number of person-year observations for each year observed before the departure or after the return.<sup>14</sup>

**Table 1 Sample distribution, number of persons and person-years**

	Duration of absence (years)						
	1	2	3	4	5	6 to 10	11 or more
<b>Persons</b>							
Number	1,190	1,465	1,130	655	480	970	285
Percentage of total	19.27	23.72	18.30	10.61	7.77	15.71	4.62
<b>Person-years (number)</b>							
<b>Years before leaving</b>							
11 or more	1,895	2,475	1,845	965	585	690	...
6 to 16	2,875	3,900	3,015	1,840	1,290	2,200	235
5	745	960	725	445	305	620	105
4	800	1,040	790	470	335	660	130
3	850	1,100	855	485	355	720	160
2	930	1,210	915	525	375	785	205
1	975	1,285	990	555	415	830	235
<b>Years since return</b>							
1	955	1,165	840	475	340	635	160
2	850	1,025	745	400	295	500	110
3	745	900	635	355	240	415	80
4	650	805	545	305	195	330	60
5	580	695	460	245	155	260	40
6 to 10	2,005	2,340	1,510	850	495	775	70
11 or more	1,670	1,760	1,010	525	200	230	...

... not applicable

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

Table 2 shows the main results for the level model—that is, where the dependent variable is the log of earnings in the given year (Equation [1] above) and the variables of interest include a set of regressors representing each year before the departure and after the return for those observed to leave and come back. The control variables behave about as expected, and the relevant results, along with the other summary statistics of the model, are not shown.<sup>15</sup>

14. Recall that one observation is included for each year before the departure and after the return for individuals identified as leavers-returners according to when they are observed in the LAD and meet the other sample inclusion criteria described above. Given the structure of the LAD, those individuals observed to leave and return in the earlier years of the LAD tend to have relatively few pre-departure observations but more post-return observations, while the opposite holds for those observed to leave and return towards the end of the LAD.

15. The full set of all regression results for the models discussed in this paper is available as an appendix from the author.



**Table 2 Earnings level model, basic specification**

Duration of absence	Years before departure		Years since return	
	Estimate	Standard error	Estimate	Standard error
Intercept	10.551***	(0.005)	...	...
<b>1 year</b>				
1	0.386***	(0.091)	0.402***	(0.091)
2	0.366***	(0.095)	0.393***	(0.097)
3	0.325***	(0.102)	0.414***	(0.104)
4	0.303***	(0.108)	0.368***	(0.112)
5	0.320***	(0.114)	0.431***	(0.120)
6 to 10	0.394***	(0.061)	0.506***	(0.065)
11 or more	0.389***	(0.075)	0.577***	(0.079)
<b>2 years</b>				
1	0.538***	(0.078)	0.558***	(0.082)
2	0.509***	(0.082)	0.591***	(0.087)
3	0.490***	(0.088)	0.586***	(0.094)
4	0.468***	(0.093)	0.611***	(0.099)
5	0.448***	(0.099)	0.622***	(0.107)
6 to 10	0.431***	(0.051)	0.641***	(0.059)
11 or more	0.426***	(0.066)	0.732***	(0.072)
<b>3 years</b>				
1	0.504***	(0.088)	0.524***	(0.096)
2	0.527***	(0.094)	0.629***	(0.102)
3	0.480***	(0.099)	0.652***	(0.111)
4	0.478***	(0.106)	0.593***	(0.120)
5	0.483***	(0.112)	0.636***	(0.131)
6 to 10	0.477***	(0.059)	0.669***	(0.074)
11 or more	0.483***	(0.076)	0.743***	(0.104)
<b>4 years</b>				
1	0.494***	(0.120)	0.557***	(0.132)
2	0.491***	(0.126)	0.612***	(0.145)
3	0.428***	(0.133)	0.648***	(0.156)
4	0.421***	(0.137)	0.684***	(0.171)
5	0.515***	(0.145)	0.758***	(0.189)
6 to 10	0.525***	(0.073)	0.706***	(0.104)
11 or more	0.568***	(0.104)	0.651***	(0.139)
<b>5 years</b>				
1	0.413***	(0.137)	0.526***	(0.151)
2	0.418***	(0.144)	0.541***	(0.161)
3	0.436***	(0.152)	0.654***	(0.181)
4	0.434***	(0.157)	0.549***	(0.202)
5	0.468***	(0.169)	0.674***	(0.224)
6 to 10	0.485***	(0.086)	0.701***	(0.136)
11 or more	0.479***	(0.130)	0.597***	(0.254)

**Table 2 Earnings level model, basic specification (concluded)**

Duration of absence	Years before departure		Years since return	
	Estimate	Standard error	Estimate	Standard error
<b>6 to 10 years</b>				
1	0.478***	(0.099)	0.359***	(0.119)
2	0.484***	(0.102)	0.460***	(0.134)
3	0.516***	(0.108)	0.510***	(0.147)
4	0.501***	(0.115)	0.563***	(0.167)
5	0.452***	(0.120)	0.633***	(0.192)
6 to 10	0.531***	(0.066)	0.494***	(0.113)
11 or more	0.541***	(0.125)	0.399*	(0.224)
<b>11 or more years</b>				
1	0.441**	(0.187)	0.159	(0.271)
2	0.512**	(0.205)	0.073	(0.328)
3	0.498**	(0.237)	0.137	(0.367)
4	0.578**	(0.264)	0.272	(0.421)
5	0.681**	(0.314)	0.670	(0.564)
6 to 10	0.614***	(0.197)	0.448	(0.432)
11 or more	...	...	...	...

... not applicable

\* Indicates significance at the 10% level.

\*\* Indicates significance at the 5% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

The results in Table 2 thus focus on the earnings patterns—holding other factors constant—of those who left the country and then returned as compared to those who did not move. The first column identifies the number of years spent out of the country, with the results then ordered for each leaver group according to the specific year of the observation relative to the year of departure or return. The columns headed “Years before departure” and “Years since return” then list the relevant coefficient estimates, level of statistical significance (at conventional 0.01, 0.05 and 0.1 significance levels), and standard errors (in parentheses). For example, the “1 year” panel of results shows the estimated relative earnings patterns for those who left for one year, with the two columns of coefficient estimates corresponding to the years before the departure and the years after the return, respectively. The other panels indicate the relative earning patterns for those who spent 2 years out of the country, 3 years, and so on out to 11 or more years (who are grouped together, as are those who left for 6 to 10 years—these groupings not affecting the major findings in any way).

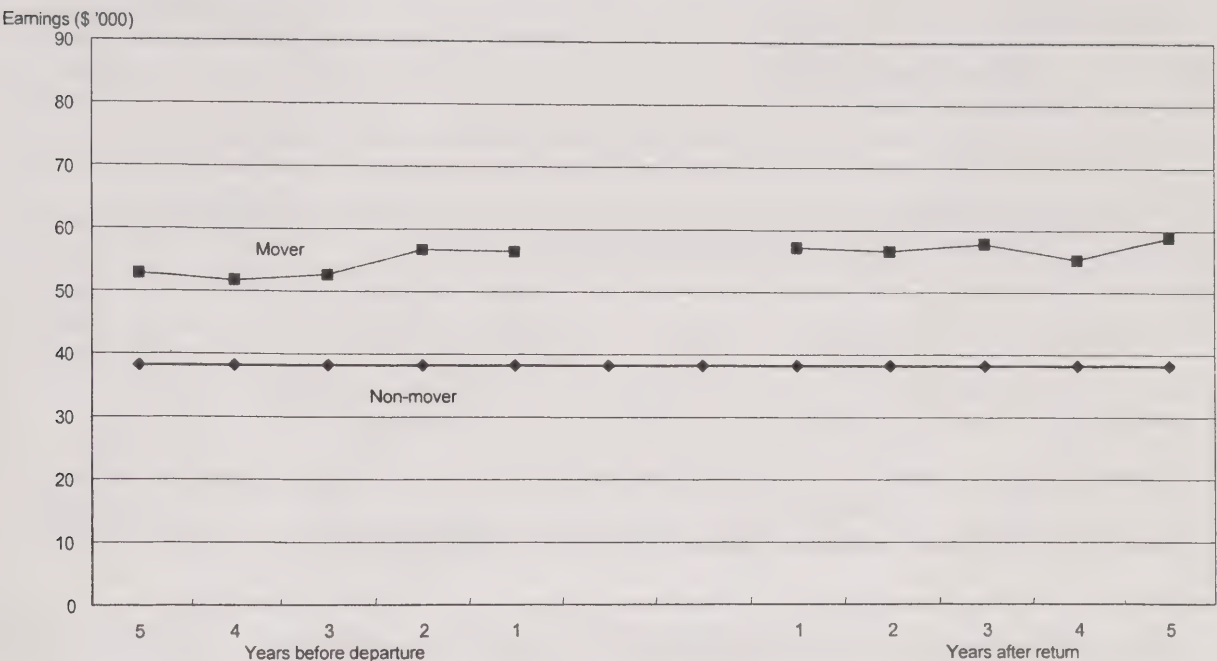
Figures 3a through 3g graph these results, converted into dollar values from the estimated log earnings regression coefficients. The (straight) horizontal line in each graph indicates the earnings levels of the control group of non-movers, representing the earnings of a ‘baseline’ individual possessing (for convenience) the set of omitted characteristics of the various sets of control variables included in the models and setting the unemployment rate at its sample mean.<sup>16</sup> These lines are flat, even though earnings would tend to rise over time with age, because age is simply one

16. Changing the baseline/comparison group (such as using the sample means of the categorical variables instead of the omitted group) would change the level of earnings of the comparison group, but would not affect the differences in earnings between movers and non-movers (before and after the moves for the latter) focused on here, because the movers’ earnings effects are estimated controlling for those baseline characteristics.



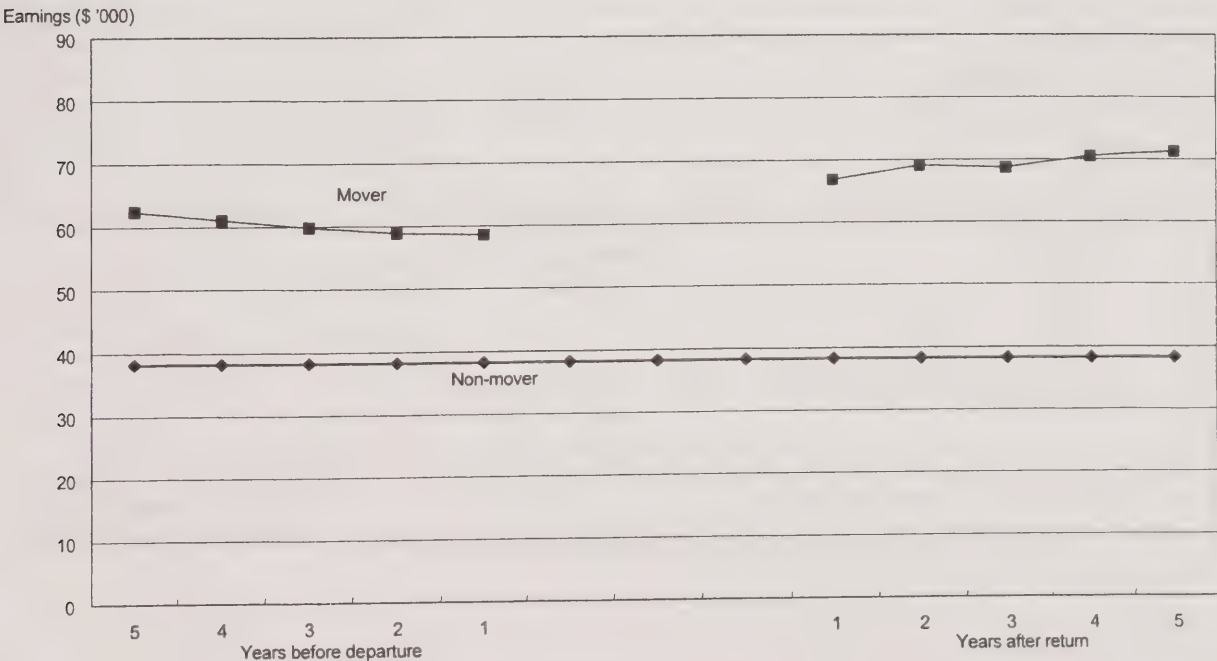
of the factors controlled for in the models; hence the results should be interpreted as basically representing the earnings of an individual controlling for age (whether a mover or not), and thus taking into account the normal growth in earnings over time.

**Figure 3a Earnings level model, fitted values — Away one year**



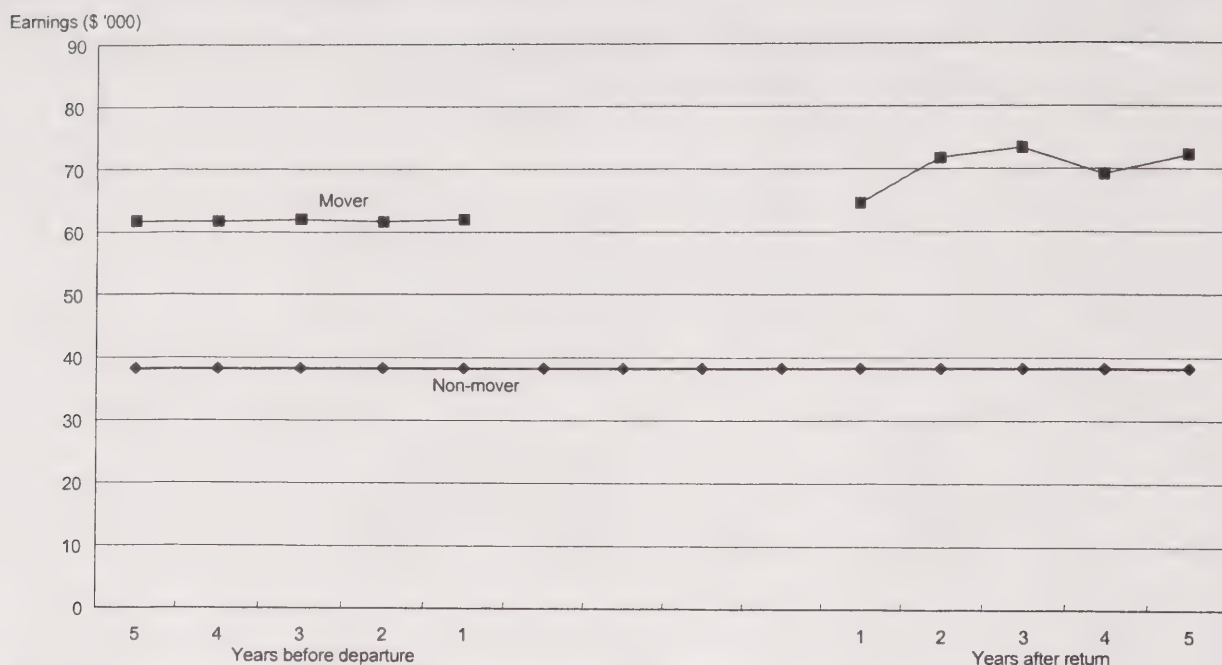
Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Figure 3b Earnings level equation, fitted values — Away two years**



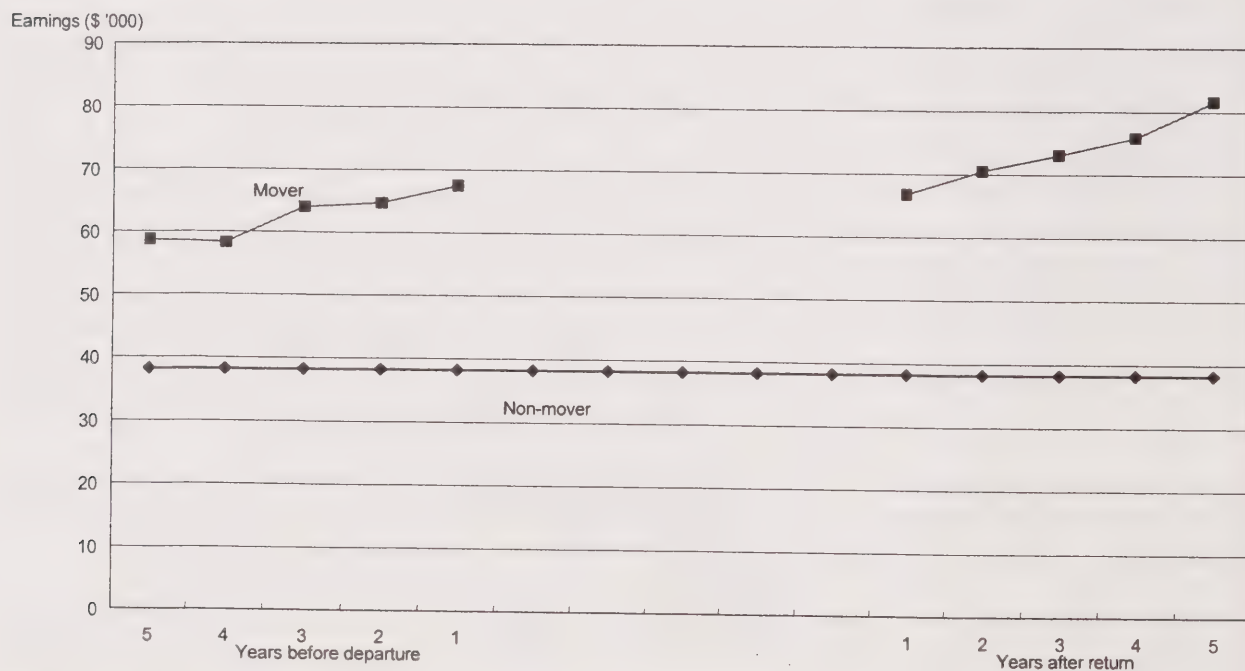
Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Figure 3c Earnings level equation, fitted values — Away three years**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

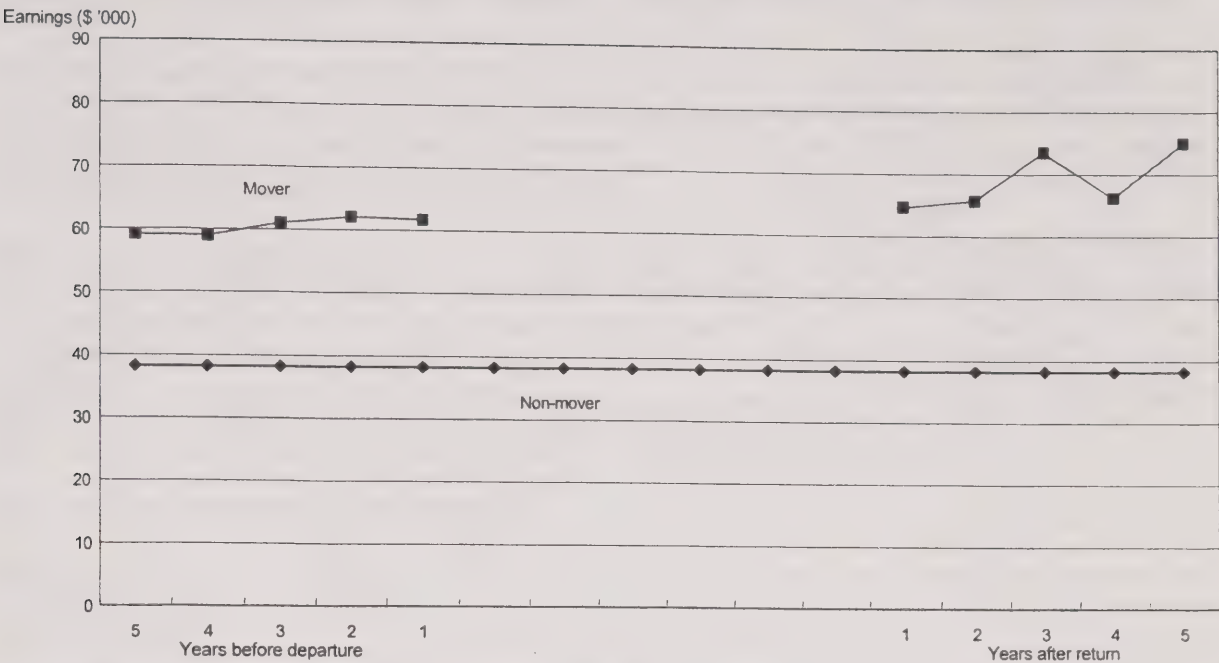
**Figure 3d Earnings level equation, fitted values — Away four years**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

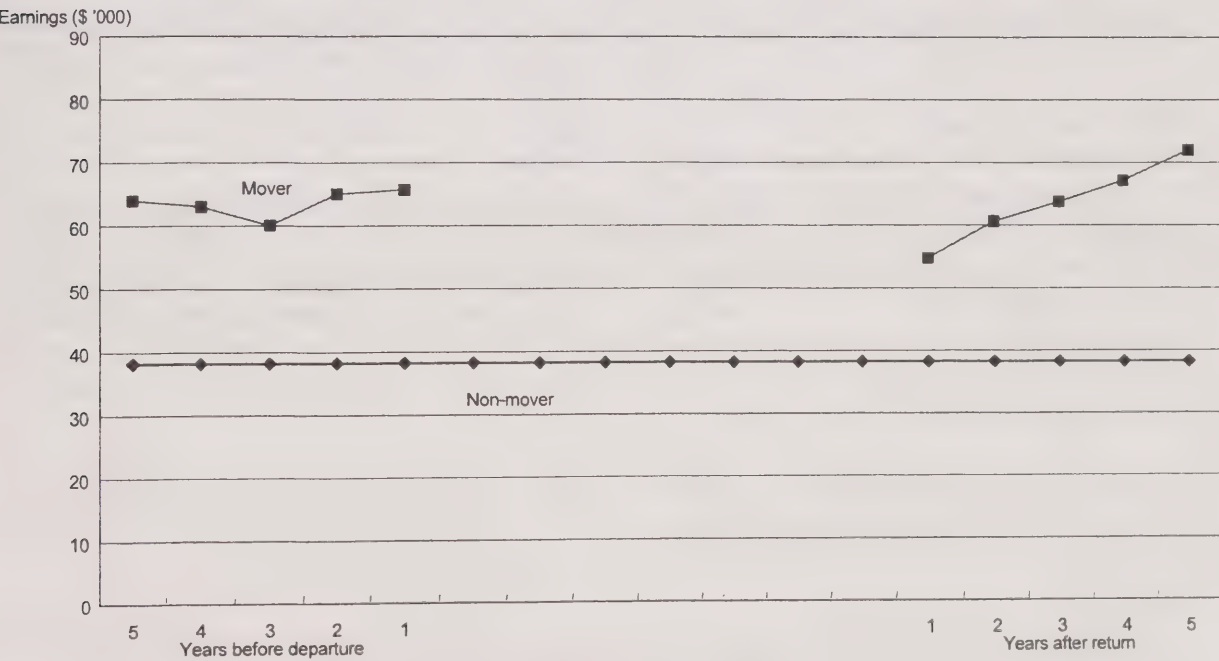


Figure 3e Earnings level equation, fitted values — Away five years



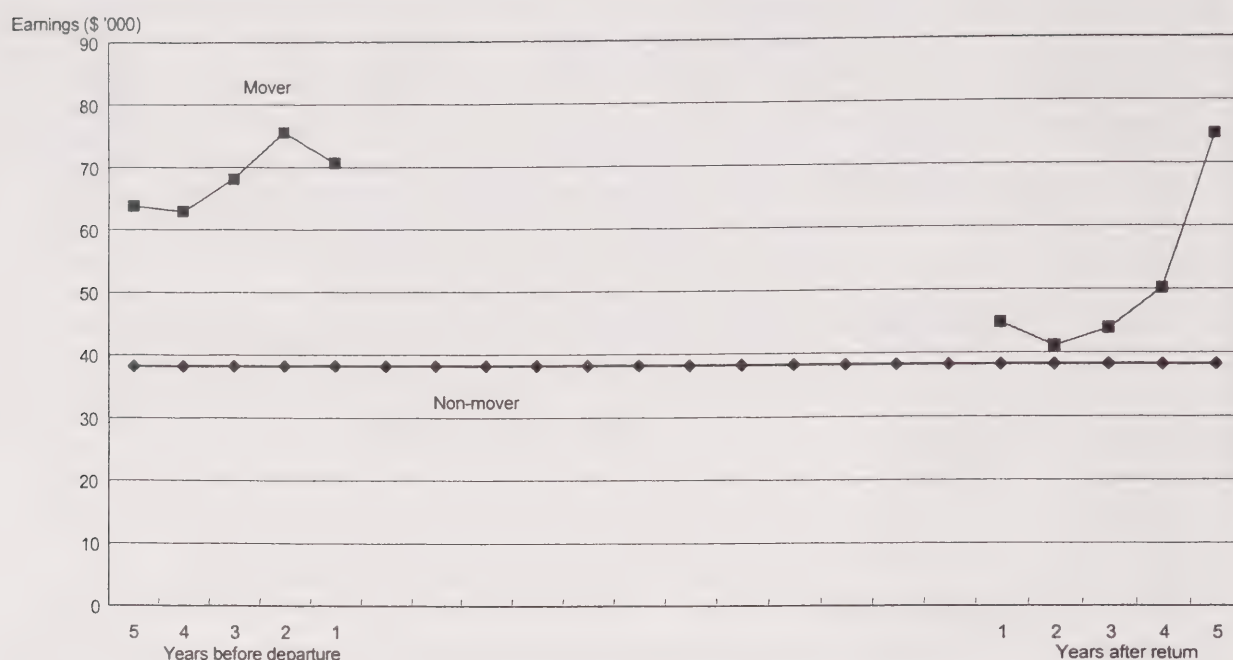
Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

Figure 3f Earnings level equation, fitted values — Away 6 to 10 years



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Figure 3g Earnings level equation, fitted values — Away 11 or more years**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

The “Mover” lines show the earnings profiles of leavers-returners in relation to this baseline comparison (non-mover) group. The sections of the graph lines for the years before the gap represent the pre-departure years and the sections after the gap represent the years after the return. The gaps themselves vary across the graphs according to the number of years spent away.<sup>17</sup> The graphs are, for convenience, restricted to the last five years before the departure and the first five years after the return.

The major findings are relatively clear. First, the earnings of those who left the country and then returned are indeed, on average, substantially higher than those of non-movers. This is seen in the almost universally positive (and statistically significant) coefficient estimates in Table 2 and in the (corresponding) graphs of movers’ earnings, which are seen to be almost everywhere significantly higher than those of non-movers. There is also some indication that those who left for longer periods had generally higher earnings than those who left for shorter periods (especially those who left for just one year), but these patterns vary.

Second, the pre-departure earnings profiles of movers appear in some cases to be somewhat *steeper* (i.e., as well as *higher*) than those of non-movers (e.g., those away four years), but this is far from a general pattern, and certainly not a strong one to the degree it exists at all.

Third, the post-return earnings of movers are (again) significantly above those of non-movers, and generally also above their own earnings in the pre-departure years, but the latter differences do not

17. Earnings effects are not estimated for either the year of departure or the year of return because the reported earnings in these years are incomplete (i.e., some earnings were likely received in Canada, some abroad).



appear to be particularly large, and sometimes need to be seen in a context of such individuals appearing to be on steeper slopes in the earlier period (e.g., away four years).

Finally, there are also some strange results (e.g., those who left for eleven or more years), but the numbers of such individuals are relatively small, and such lengthy departures—followed by a return—may well have occurred for specific reasons or been preceded or followed by other special circumstances (e.g., an injury or other family crisis).<sup>18</sup>

Taken together, the most important general findings are that movers have generally higher earnings levels than non-movers, that there is some evidence of a modest increase in (relative) earnings levels in the post-return years relative to the pre-departure years for those who move, and no clear indication of profiles being generally steeper in either the pre-departure or post-return years for those who left and then came back to Canada relative to non-movers. The “Globerman hypothesis” referred to above would thus seem to gain at most only a little support in the data.

## V.2 *Aggregating the level model*

The next step was to aggregate across pre-departure and post-return years and to change the specification a little to provide for a set of direct tests of the differences in the earnings levels of movers as compared to non-movers and any shift in these relative levels from the pre-departure period to the post-return period. More specifically, the five pre-departure years were treated together as were the five post-return years, a single *mover* variable was defined to represent any of the pre-departure or post-return years (for movers), and an additional *after return* variable was created to allow the post-return years to differ from the pre-departure years. The *mover* variable thus tests for a general difference in the earnings of leavers-returners relative to the general population, while the *after return* variable directly tests for a change in this difference from the pre-departure to post-return years.

This model thus builds sample size on the assumption that the five pre-departure years and five post-return years can each be treated together, and provides direct tests of the differences being investigated. Table 3a reports the results for this model where the years of departure are treated as before, while Table 3b shows the findings when departures of two to five years are grouped together in order to further build sample size for the relevant tests (while reducing the dimensionality of the regressions and associated tests).<sup>19</sup>

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18. See, for example, the ‘pre-departure dip’ for those who left for 11 years or more.

19. Such tests cannot be constructed for the model as specified earlier (i.e., without something like the five-year aggregations), with *mover* and *after return* variables defined for each particular year leading up to a departure or following a return, because there is no obvious pairing of years between the pre-departure and post-return periods.

**Table 3a Earnings level model, mover and after-return specification**

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
1 year	0.331***	(0.052)	0.070	(0.070)
2 years	0.482***	(0.045)	0.108*	(0.061)
3 years	0.494***	(0.051)	0.107	(0.071)
4 years	0.463***	(0.068)	0.172*	(0.097)
5 years	0.437***	(0.078)	0.140	(0.112)
6 to 10 years	0.490***	(0.056)	-0.015	(0.086)
11 years or more	0.549***	(0.124)	-0.357*	(0.203)

\* Indicates significance at the 10% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Table 3b Earnings level model, mover and post-return specification**  
— With aggregation by duration of absence

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
1 year	0.331***	(0.052)	0.070	(0.070)
2 to 5 years	0.476***	(0.028)	0.122***	(0.039)
6 to 10 years	0.490***	(0.056)	-0.015	(0.086)
11 years or more	0.549***	(0.124)	-0.357*	(0.203)

\* Indicates significance at the 10% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

We again see the general differences in the earnings levels of movers and non-movers, here captured in the positive and statistically significant *mover* variable coefficients. In effect, these represent the averages of the pre-departure differences between movers and non-movers seen in Table 2 over the five pre-departure years. Note the smaller gap for those who left for only one year (a coefficient estimate of 0.331), who may represent different types of individuals, with different plans and objectives, than those who left for longer periods (coefficient estimates ranging between 0.437 and 0.549).

We also gain a tighter view of the differences between the pre-departure and post-return years. Table 3a points to only marginally significant changes in the relative earnings of movers from the pre-departure to post-return period, ranging from approximately 7% higher earnings (on average) for those who left just one year to 17.2% higher earnings for those who left for four years. The longer periods, beyond five years, show no such (i.e., positive) differences.

Aggregating across departures of two to five years yields an average difference in earnings between movers and non-movers of 0.476, and a quite strongly significant increase in the relative earnings of movers of approximately 12.2% in the post-return period. (The other estimates do not change.) The numbers thus point to 'smallish' or 'moderate' but significant increases in the earnings levels of those who leave the country for a moderate number of years—increases which come on top of their generally higher earnings levels in the pre-departure period.



### V.3 The difference models

The difference equation results presented in Table 4 show the year-to-year earnings changes (i.e., the growth in earnings) for movers in their pre-departure and post-return years as compared to the general earnings growth patterns of non-movers over the same period of time (i.e., Equation [2] above). Are earnings profiles not only higher, but also steeper for movers than non-movers in the pre-departure and post-return years? And if so, are they especially steeper in the post-return years, indicating that individuals get on faster earnings growth paths when they come back after having been out of the country? Here we are exploring earnings growth in a more direct fashion than trying to infer it from the earnings level equations reported above.

**Table 4 Difference model, basic specification**

Duration of absence	Years before departure		Years since return	
	Estimate	Standard error	Estimate	Standard error
Intercept	0.040***	(0.003)	...	...
<b>1 year</b>				
1	...	...	0.013	(0.062)
2	0.026	(0.061)	0.010	(0.066)
3	0.055	(0.065)	-0.036	(0.072)
4	0.072	(0.069)	0.070	(0.077)
5	0.033	(0.073)	0.016	(0.081)
<b>2 to 5 years</b>				
1	...	...	0.062	(0.036)
2	0.022	(0.033)	0.002	(0.039)
3	0.064***	(0.035)	-0.001	(0.042)
4	0.060	(0.037)	0.033	(0.045)
5	0.045	(0.039)	0.004	(0.050)
<b>6 to 10 years</b>				
1	...	...	0.082	(0.085)
2	0.041	(0.066)	0.053	(0.094)
3	0.042	(0.069)	0.041	(0.106)
4	0.085	(0.073)	0.035	(0.120)
5	0.060	(0.078)	-0.003	(0.130)
<b>11 years and more</b>				
1	...	...	-0.073	(0.209)
2	0.024	(0.132)	0.123	(0.236)
3	0.035	(0.152)	-0.074	(0.270)
4	0.058	(0.166)	-0.015	(0.353)
5	0.031	(0.206)	-0.014	(0.430)

... not applicable

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

The results (reported only for the five years either side of the move) support the impression gained from the level equation results seen above, and indicate that the growth in earnings of movers is not significantly different than the growth in earnings of non-movers. While the coefficient estimates tend to be mostly positive, and sometimes substantially so (compare these to the intercept rate given at the top of the table, which represents the average growth rate for the baseline group of non-movers), none of the differences are statistically significant.

Tables 5a and 5b then aggregate the model in the same manner as the earnings level model reported above. The findings generally point to earnings growth being marginally greater for movers as compared to non-movers in the pre-departure period (small but mostly non-significant coefficient estimates), but, if anything, a little lower in the post-return period (negative but again non-significant coefficients). In fact the only statistically significant coefficient estimate in the whole set is for the pre-departure period when aggregating over departures of two to five years.

**Table 5a Difference model, mover and after-return specification**

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
1 year	0.047	(0.034)	-0.028	(0.048)
2 years	0.060	(0.029)	-0.038	(0.042)
3 years	0.042	(0.033)	-0.004	(0.049)
4 years	0.040	(0.044)	-0.011	(0.067)
5 years	0.031	(0.050)	-0.021	(0.077)
6 to 10 years	0.057	(0.036)	-0.004	(0.062)
11 years or more	0.042	(0.081)	-0.059	(0.159)

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Table 5b Difference model, mover and after-return specification — With aggregation by duration of absence**

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
1 year	0.047	(0.034)	-0.028	(0.048)
2 to 5 years	0.047***	(0.018)	-0.021	(0.027)
6 to 10 years	0.057	(0.036)	-0.004	(0.062)
11 years or more	0.042	(0.081)	-0.059	(0.159)

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

The lack of any strong effects thus corroborates what was found with the level equation estimates reported above.

#### **V.4 The pre-departure-post-return difference models**

The results for the shift difference models (Equation [3] above) are reported in Table 6. Here the indication is that the earnings of movers do not necessarily ratchet up to any significant degree from the last (full) year before their departure to the first (full) year after their return. The earnings growth rates of movers are found to be uniformly a little greater than those of non-movers over the various



lengths of absences (coefficient estimates of from 0.016 to 0.117), but nowhere is the difference statistically significant, and the patterns do not take any particularly coherent pattern across the length of absence from the country (e.g., the gains are not greater for those away more years).

**Table 6 Pre-departure–post-return difference models, basic specification**

Duration of absence	Estimate	Standard error
<b>1 year</b>		
Intercept	0.076***	(0.004)
Mover	0.048	(0.080)
<b>2 years</b>		
Intercept	0.083***	(0.005)
Mover	0.026	(0.073)
<b>3 years</b>		
Intercept	0.084***	(0.005)
Mover	0.016	(0.091)
<b>4 years</b>		
Intercept	0.105***	(0.005)
Mover	0.020	(0.127)
<b>5 years</b>		
Intercept	0.134***	(0.006)
Mover	0.117	(0.150)

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

How, then, do these findings square with those of the level equations which suggest that movers do in fact have at least slightly higher (relative) earnings levels in the post-return period than in the pre-departure period? The answer lies at least partly in the fact that the earnings of movers in the first year back tend to be lower than in subsequent years. Estimating growth patterns using some aggregation scheme across years comparable to that shown in Tables 2a and 2b might, for example, generate more similar findings—but how to implement such an aggregating scheme is not obvious, especially when these models must, by construction, be estimated over a fixed time period in order to compare the change in earnings levels of movers and non-movers, hence rendering such aggregation problematic. In any event, especially in the absence of much in the way of significant slope effects, the earlier level equations perhaps tell us what we need to know about the earnings profiles of movers and non-movers.

## **V.5 Differences by level of pre-departure earnings**

Concerns regarding emigration from Canada have typically focussed on those at higher skill—or occupation—levels. Lacking measures of either of these in the LAD (since they are not reported on individuals' tax forms), the alternative approach adopted here is to analyse patterns by (pre-departure) earnings level. Individuals are classified into one of three categories according to their earnings in the last full year before leaving the country: earnings less than \$60,000, earnings from \$60,000 to \$100,000, and earnings greater than \$100,000. This is done for each of the model specifications.

The detailed level model findings are reported in Table 7, but the results are again seen better graphically (Figures 4a through 4g). The highest earnings groups have, essentially by construction, higher earnings in the pre-departure years. Perhaps more interesting is their relative run-ups in earnings in the years leading up to their departures from the country.<sup>20</sup> Of even greater surprise might be that their comparative post-return earnings levels are quite varied, sometimes above, sometimes below their pre-departure levels, depending on the number of years away and the particular years before their departure or after their return being considered.

**Table 7 Earnings level model by pre-departure earnings level**

Duration of absence	Years before departure		Years since return	
	Estimate	Absence	Estimate	Absence
<b>1 Year</b>				
<b>Low earnings</b>				
1	-0.195	(0.125)	0.084	(0.129)
2	-0.196	(0.139)	0.060	(0.136)
3	-0.250	(0.153)	0.135	(0.148)
4	-0.280	(0.172)	0.126	(0.156)
5	-0.204	(0.185)	0.188	(0.167)
6 to 10	-0.079	(0.106)	0.303***	(0.091)
11 or more	-0.007	(0.136)	0.462***	(0.108)
<b>Medium earnings</b>				
1	0.781***	(0.165)	0.679***	(0.178)
2	0.710***	(0.168)	0.696***	(0.188)
3	0.639***	(0.180)	0.683***	(0.199)
4	0.567***	(0.182)	0.644***	(0.221)
5	0.513***	(0.192)	0.698***	(0.241)
6 to 10	0.510***	(0.101)	0.745***	(0.127)
11 or more	0.434***	(0.134)	0.656***	(0.185)
<b>High earnings</b>				
1	1.424***	(0.215)	1.201***	(0.247)
2	1.209***	(0.223)	1.202***	(0.272)
3	1.149***	(0.231)	1.181***	(0.297)
4	1.071***	(0.240)	1.181***	(0.335)
5	0.977***	(0.247)	1.283***	(0.359)
6 to 10	0.867***	(0.120)	1.346***	(0.213)
11 or more	0.694***	(0.130)	1.905***	(0.280)

20. Recall that these groups are based on earnings in the last full year before departure and thus consist of consistent samples in the years before this.



**Table 7 Earnings level model by pre-departure earnings level (continued)**

Duration of absence	Years before departure		Years since return	
	Estimate	Absence	Estimate	Absence
<b>2 years</b>				
<b>Low earnings</b>				
1	-0.030	(0.116)	0.231*	(0.122)
2	-0.007	(0.126)	0.306***	(0.129)
3	-0.015	(0.140)	0.344***	(0.139)
4	-0.098	(0.153)	0.363***	(0.151)
5	-0.098	(0.167)	0.389***	(0.164)
6 to 10	-0.036	(0.092)	0.460***	(0.093)
11 or more	0.126	(0.122)	0.680***	(0.118)
<b>Medium earnings</b>				
1	0.787***	(0.133)	0.749***	(0.144)
2	0.722***	(0.139)	0.794***	(0.154)
3	0.624***	(0.149)	0.753***	(0.164)
4	0.605***	(0.155)	0.805***	(0.172)
5	0.561***	(0.165)	0.793***	(0.183)
6 to 10	0.476***	(0.087)	0.755***	(0.098)
11 or more	0.450***	(0.124)	0.872***	(0.127)
<b>High earnings</b>				
1	1.377***	(0.173)	1.222***	(0.214)
2	1.185***	(0.176)	1.182***	(0.235)
3	1.116***	(0.183)	1.183***	(0.259)
4	1.074***	(0.186)	1.074***	(0.275)
5	0.978***	(0.191)	1.172***	(0.309)
6 to 10	0.831***	(0.091)	1.234***	(0.213)
11 or more	0.632***	(0.105)	1.427***	(0.297)

Table 7 Earnings level model by pre-departure earnings level (continued)

Duration of absence	Years before departure		Years since return	
	Estimate	Absence	Estimate	Absence
<b>3 years</b>				
<b>Low earnings</b>				
1	-0.130	(0.131)	0.164	(0.142)
2	-0.060	(0.142)	0.273*	(0.149)
3	-0.154	(0.155)	0.273*	(0.163)
4	-0.155	(0.172)	0.201	(0.178)
5	-0.097	(0.190)	0.305	(0.192)
6 to 10	-0.067	(0.106)	0.442***	(0.111)
11 or more	0.075	(0.143)	0.533***	(0.167)
<b>Medium earnings</b>				
1	0.773***	(0.160)	0.650***	(0.185)
2	0.751***	(0.172)	0.823***	(0.199)
3	0.703***	(0.181)	0.862***	(0.212)
4	0.651***	(0.191)	0.823***	(0.232)
5	0.567***	(0.201)	0.734***	(0.253)
6 to 10	0.475***	(0.108)	0.830***	(0.146)
11 or more	0.511***	(0.154)	0.871***	(0.214)
<b>High earnings</b>				
1	1.367***	(0.181)	1.220***	(0.226)
2	1.280***	(0.188)	1.271***	(0.247)
3	1.161***	(0.188)	1.393***	(0.274)
4	1.106***	(0.194)	1.264***	(0.296)
5	1.027***	(0.198)	1.408***	(0.325)
6 to 10	0.890***	(0.093)	1.126***	(0.204)
11 or more	0.714***	(0.112)	1.093***	(0.411)



**Table 7 Earnings level model by pre-departure earnings level (continued)**

Duration of absence	Years before departure		Years since return	
	Estimate	Absence	Estimate	Absence
<b>4 years</b>				
<b>Low earnings</b>				
1	-0.107	(0.175)	0.158	(0.193)
2	-0.129	(0.193)	0.272	(0.210)
3	-0.199	(0.208)	0.332	(0.224)
4	-0.213	(0.222)	0.284	(0.244)
5	-0.062	(0.245)	0.404	(0.272)
6 to 10	0.100	(0.131)	0.489***	(0.147)
11 or more	0.338	(0.186)	0.633***	(0.210)
<b>Medium earnings</b>				
1	0.800***	(0.222)	0.795***	(0.270)
2	0.759***	(0.231)	0.767***	(0.304)
3	0.674***	(0.244)	0.770***	(0.331)
4	0.651***	(0.250)	0.865***	(0.349)
5	0.627***	(0.258)	0.943***	(0.398)
6 to 10	0.509***	(0.130)	0.820***	(0.237)
11 or more	0.445**	(0.208)	0.703*	(0.402)
<b>High earnings</b>				
1	1.299***	(0.245)	1.240***	(0.288)
2	1.228***	(0.250)	1.350***	(0.324)
3	1.111***	(0.253)	1.460***	(0.364)
4	1.057***	(0.257)	1.787***	(0.440)
5	1.069***	(0.262)	1.850***	(0.483)
6 to 10	0.954***	(0.125)	1.721***	(0.311)
11 or more	0.832***	(0.165)	1.389***	(0.566)

Table 7 Earnings level model by pre-departure earnings level (continued)

Duration of absence	Years before departure		Years since return	
	Estimate	Absence	Estimate	Absence
<b>5 years</b>				
<b>Low earnings</b>				
1	-0.199	(0.193)	0.124	(0.207)
2	-0.138	(0.207)	0.130	(0.221)
3	-0.073	(0.225)	0.233	(0.265)
4	-0.093	(0.241)	0.215	(0.295)
5	0.030	(0.264)	0.311	(0.335)
6 to 10	0.120	(0.136)	0.320	(0.212)
11 or more	0.220	(0.209)	0.318	(0.386)
<b>Medium earnings</b>				
1	0.731***	(0.251)	0.809***	(0.293)
2	0.649***	(0.263)	0.820***	(0.315)
3	0.543*	(0.279)	0.808***	(0.333)
4	0.535*	(0.282)	0.707*	(0.369)
5	0.528*	(0.301)	0.822**	(0.391)
6 to 10	0.535***	(0.156)	0.793***	(0.232)
11 or more	0.451*	(0.232)	0.461	(0.533)
<b>High earnings</b>				
1	1.515***	(0.310)	1.534***	(0.409)
2	1.409***	(0.318)	1.518***	(0.425)
3	1.283***	(0.313)	1.607***	(0.451)
4	1.213***	(0.317)	1.329***	(0.522)
5	1.121***	(0.337)	1.519***	(0.651)
6 to 10	0.925***	(0.158)	1.694***	(0.453)
11 or more	0.898***	(0.244)	...	...



**Table 7 Earnings level model by pre-departure earnings level (continued)**

Duration of absence	Years before departure		Years since return	
	Estimate	Absence	Estimate	Absence
<b>6 to 10 years</b>				
<b>Low earnings</b>				
1	-0.148	(0.142)	-0.108	(0.165)
2	-0.099	(0.154)	0.076	(0.185)
3	-0.053	(0.172)	0.180	(0.203)
4	0.005	(0.191)	0.241	(0.237)
5	-0.102	(0.199)	0.269	(0.265)
6 to 10	0.044	(0.126)	0.163	(0.156)
11 or more	0.185	(0.258)	0.246	(0.354)
<b>Medium earnings</b>				
1	0.771***	(0.192)	0.724***	(0.254)
2	0.714***	(0.195)	0.889***	(0.287)
3	0.640***	(0.200)	0.863***	(0.314)
4	0.569***	(0.206)	0.938***	(0.373)
5	0.529***	(0.220)	1.020***	(0.453)
6 to 10	0.525***	(0.118)	1.025***	(0.297)
11 or more	0.521**	(0.240)	0.203	(0.789)
<b>High earnings</b>				
1	1.353***	(0.195)	1.321***	(0.294)
2	1.241***	(0.200)	1.390***	(0.373)
3	1.159***	(0.200)	1.246***	(0.415)
4	1.034***	(0.208)	1.199***	(0.446)
5	1.035***	(0.216)	1.435***	(0.515)
6 to 10	0.897***	(0.107)	1.842***	(0.440)
11 or more	0.733***	(0.179)	...	...

**Table 7 Earnings level model by pre-departure earnings level (concluded)**

Duration of absence	Years before departure		Years since return	
	Estimate	Absence	Estimate	Absence
<b>11 years or more</b>				
<b>Low earnings</b>				
1	-0.135	(0.266)	0.086	(0.339)
2	-0.010	(0.307)	0.210	(0.409)
3	-0.016	(0.372)	0.176	(0.454)
4	-0.023	(0.464)	0.222	(0.525)
5	0.183	(0.583)	0.737	(0.759)
6 to 10	0.115	(0.366)	0.243	(0.704)
11 or more				
<b>Medium earnings</b>				
1	0.760**	(0.359)	0.499	(0.746)
2	0.740*	(0.387)	0.629	(1.097)
3	0.573	(0.453)	0.023	(1.090)
4	0.620	(0.480)	0.914	(1.442)
5	0.717	(0.554)	0.834	(1.702)
6 to 10	0.645*	(0.345)	...	...
11 or more				
<b>High earnings</b>				
1	1.287***	(0.387)	0.128	(0.948)
2	1.203***	(0.423)	-0.667	(1.036)
3	1.192***	(0.461)	-0.507	(1.424)
4	1.092***	(0.480)	0.351	(1.968)
5	1.041*	(0.555)	1.476	(2.822)
6 to 10	0.931***	(0.340)	1.349	(2.822)
11 or more	...	...	...	...

... not applicable

\* Indicates significance at the 10% level.

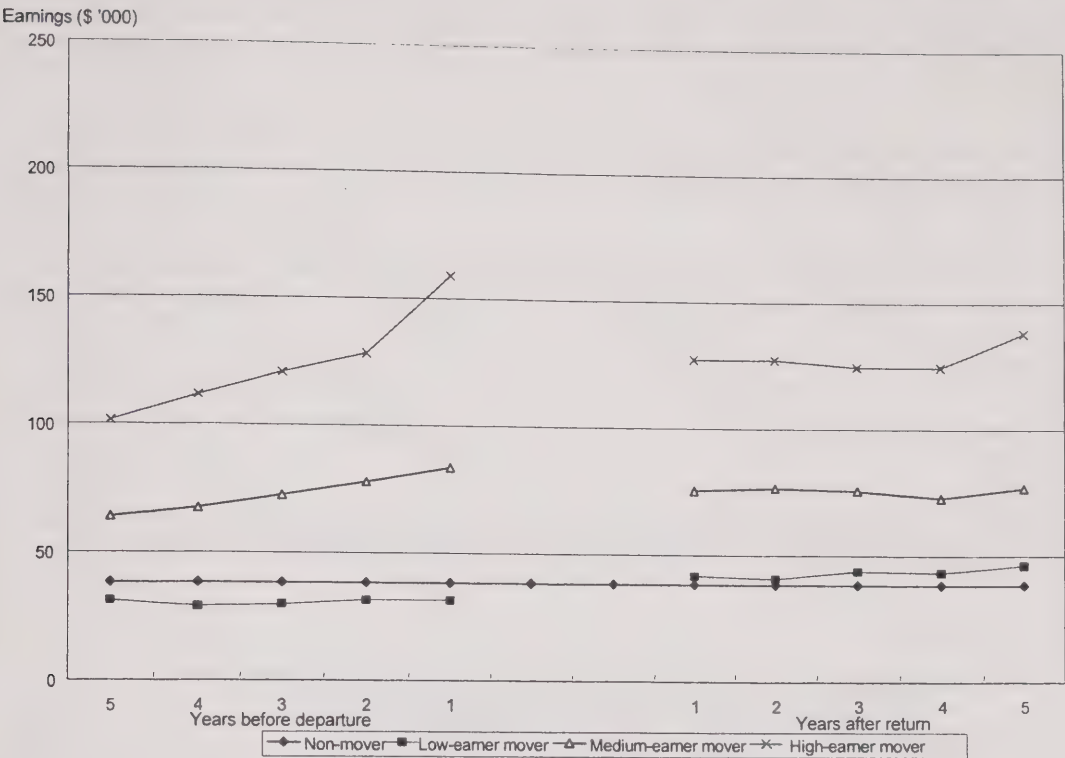
\*\* Indicates significance at the 5% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

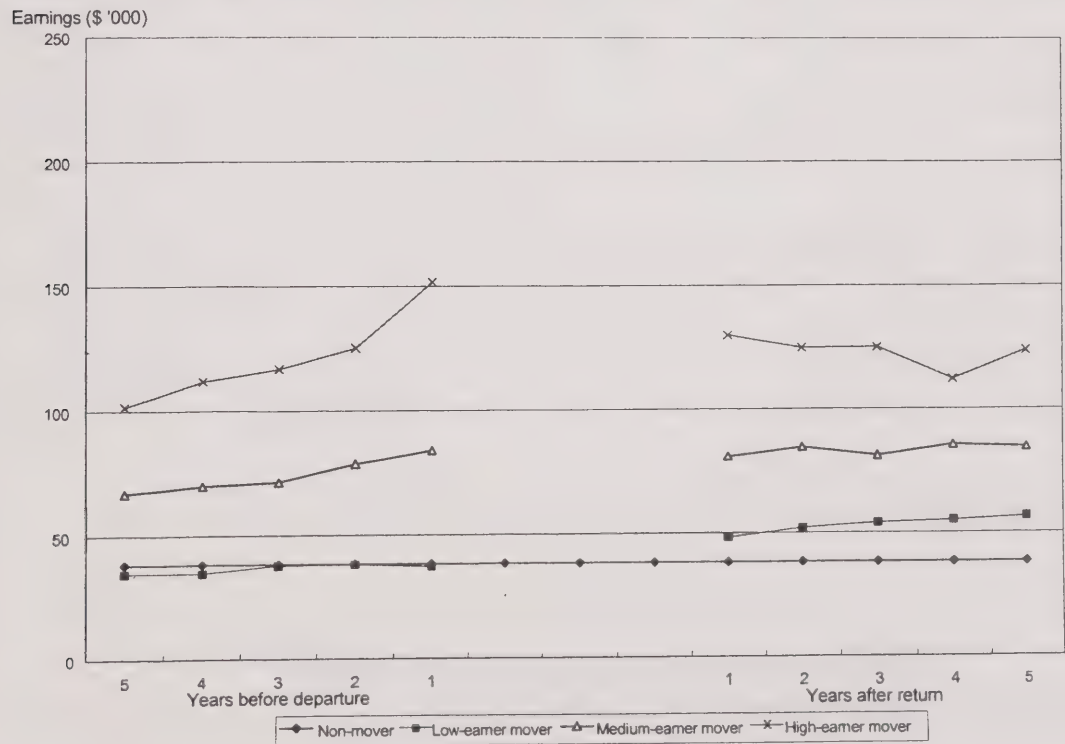


**Figure 4a Earnings level equation by pre-departure earnings level — Absence of one year**



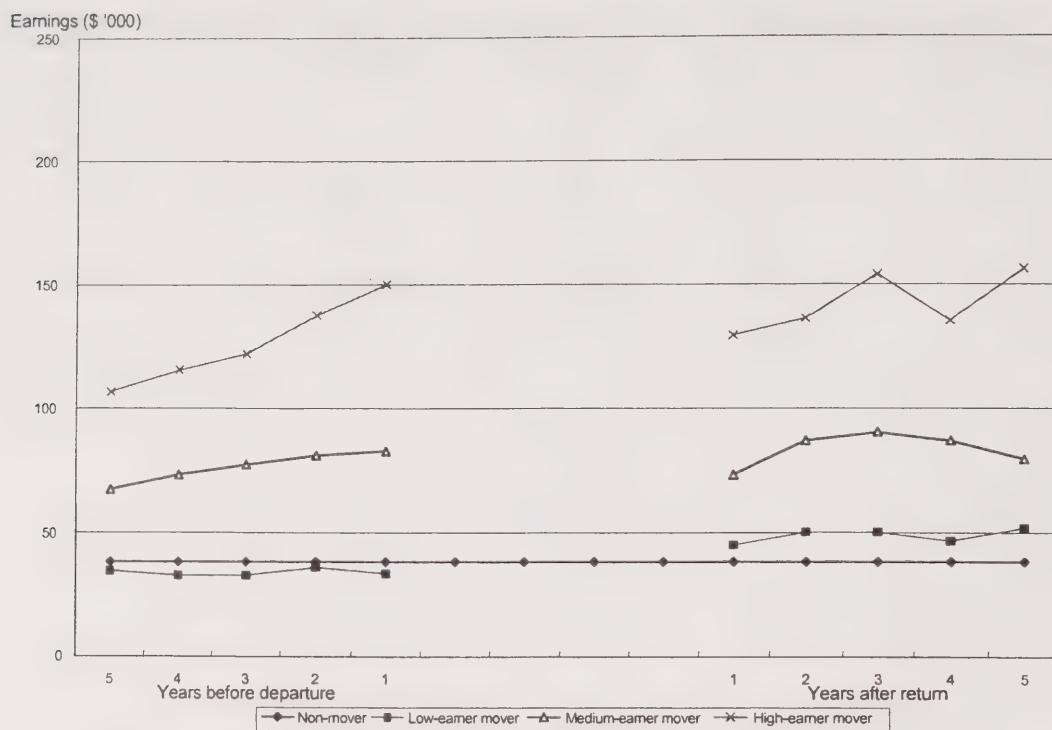
Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Figure 4b Earnings level equation by pre-departure earnings level — Absence of two years**



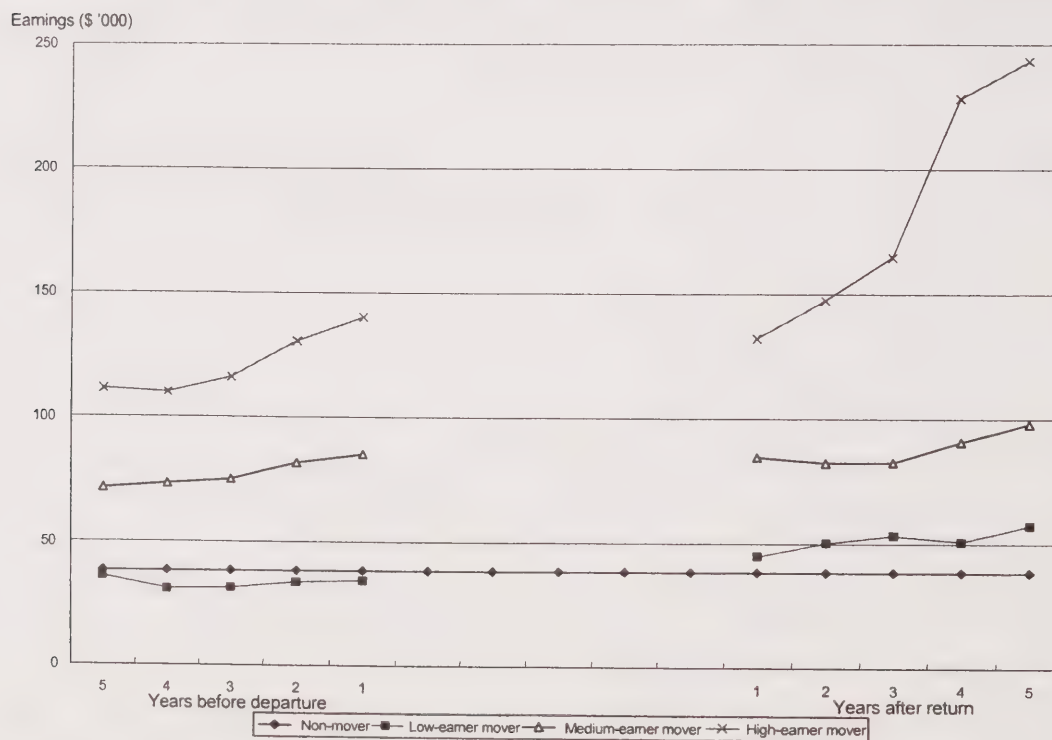
Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Figure 4c Earnings level equation by pre-departure earnings level — Absence of three years**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

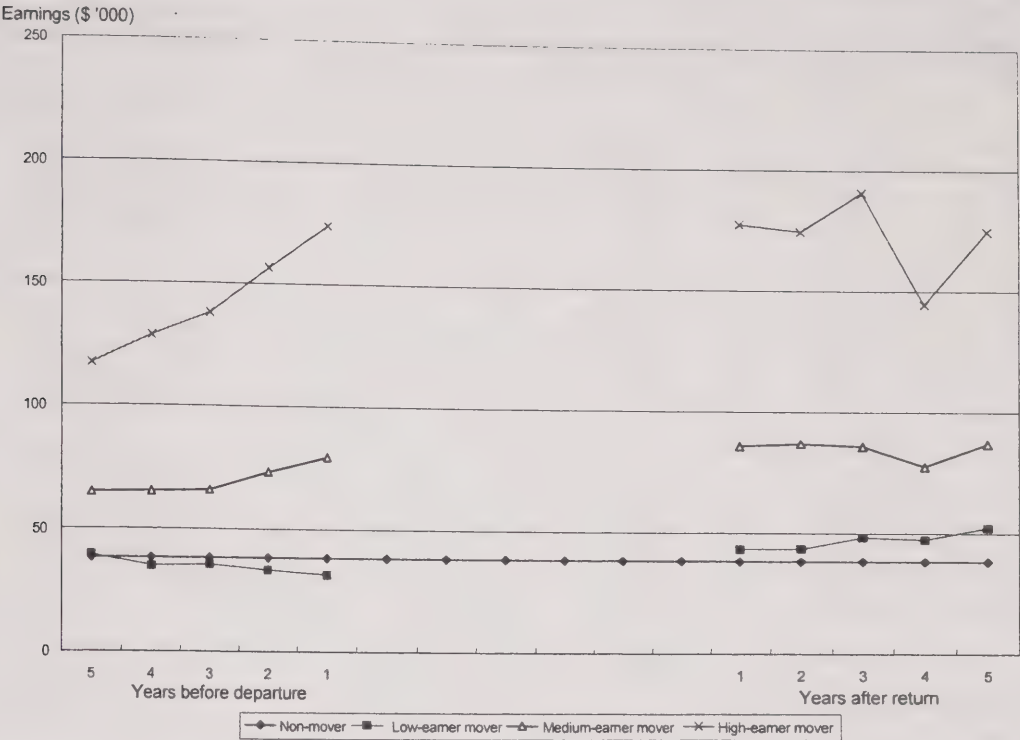
**Figure 4d Earnings level equation by pre-departure earnings level — Absence of four years**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

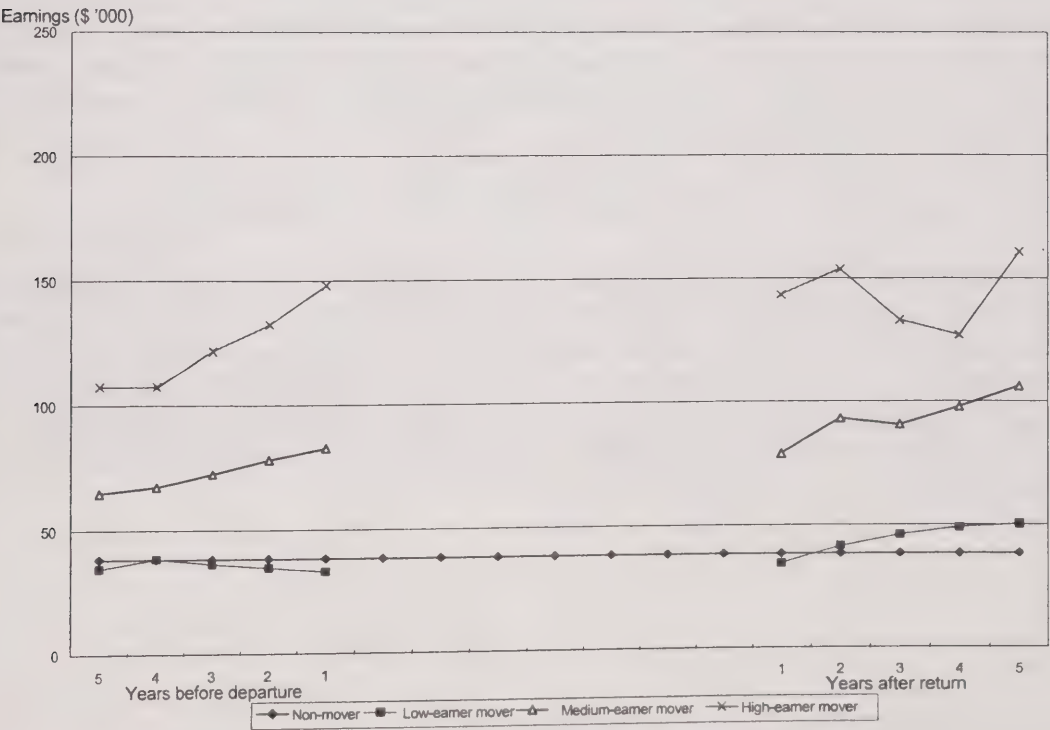


**Figure 4e Earnings level equation by pre-departure earnings level — Absence of five years**



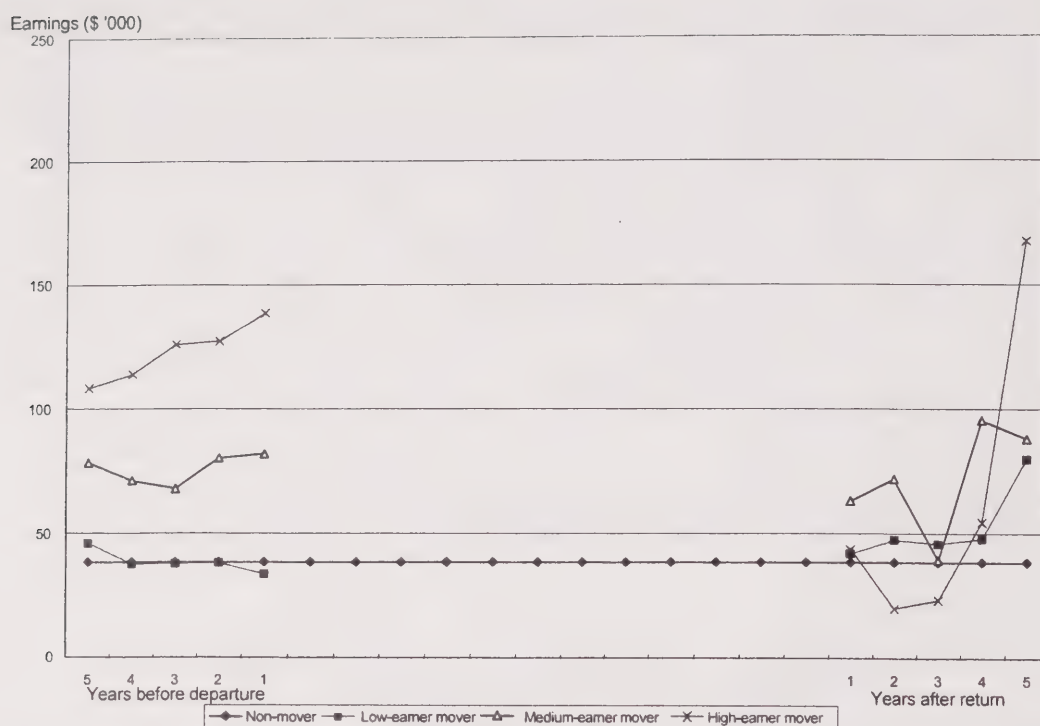
Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Figure 4f Earnings level equation by pre-departure earnings level — Absence of 6 to 10 years**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

**Figure 4g Earnings level equation by pre-departure earnings level — Absence of 11 years or more**



Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

For the lowest-earnings group, in contrast, pre-departure earnings levels are quite flat as well as, of course, lower than the higher-earnings groups (and about the same as the non-mover group, which is not broken down by earnings level).<sup>21</sup> But again of more interest is that their post-return earnings are generally (relatively) *higher* than in the pre-departure years—a pattern that is all the more intriguing by the lack of any pre-departure run-up.

The middle-earnings group has a pattern that lies somewhat between these two others.

These results are further borne out in the models where pre-departure and post-return patterns are tested more directly (as before). Table 8a shows significant increases only for the lowest-earnings groups who were away one to four years, although it is worth noting that the effects are positively signed everywhere else except for the middle- and high-earnings groups away the longest intervals. Aggregating across those who departed two through five years affirms the increases for the low-earnings group, while also showing marginally significant increases for the medium- and high-earnings groups away two to five years (Table 8b).

21. Recall that the baseline non-movers comparison profiles represent the earnings levels of a person of a given set of characteristics (described above), including age, as predicted by the estimated regression coefficient estimates.

**Table 8a Earnings level model by pre-departure earnings level, mover and after-return specification**

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
<b>1 year</b>				
Low earnings	-0.230***	(0.080)	0.342***	(0.103)
Medium earnings	0.614***	(0.090)	0.066	(0.128)
High earnings	1.108***	(0.118)	0.097	(0.177)
<b>2 years</b>				
Low earnings	-0.046	(0.073)	0.362***	(0.096)
Medium earnings	0.636***	(0.076)	0.141	(0.105)
High earnings	1.093***	(0.092)	0.081	(0.146)
<b>3 years</b>				
Low earnings	-0.113	(0.081)	0.350***	(0.109)
Medium earnings	0.675***	(0.093)	0.097	(0.133)
High earnings	1.147***	(0.096)	0.150	(0.154)
<b>4 years</b>				
Low earnings	-0.154	(0.108)	0.427***	(0.147)
Medium earnings	0.682***	(0.123)	0.134	(0.190)
High earnings	1.118***	(0.128)	0.334	(0.207)
<b>5 years</b>				
Low earnings	-0.078	(0.1160)	0.258	(0.163)
Medium earnings	0.568***	(0.141)	0.229	(0.206)
High earnings	1.260***	(0.161)	0.250	(0.266)
<b>6 to 10 years</b>				
Low earnings	-0.065	(0.089)	0.154	(0.127)
Medium earnings	0.619***	(0.103)	0.233	(0.176)
High earnings	1.122***	(0.103)	0.195	(0.202)
<b>11 years or more</b>				
Low earnings	0.008	(0.199)	0.190	(0.283)
Medium earnings	0.666***	(0.230)	-0.162	(0.536)
High earnings	1.143***	(0.238)	-1.299**	(0.634)

\*\* Indicates significance at the 5% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.



**Table 8b Earnings level model by pre-departure earnings level, mover and after-return specification — With aggregation by duration of absence**

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
<b>1 year</b>				
Low earnings	-0.230***	0.080	0.342***	0.103
Medium earnings	0.614***	0.090	0.066	0.128
High earnings	1.108***	0.118	0.097	0.177
<b>2 to 5 years</b>				
Low earnings	-0.090**	0.045	0.358***	0.060
Medium earnings	0.646***	0.050	0.136*	0.071
High earnings	1.135***	0.056	0.167*	0.089
<b>6 to 10 years</b>				
Low (earnings)	-0.065	0.089	0.154	0.127
Medium	0.619***	0.103	0.233	0.176
High	1.122***	0.103	0.195	0.202
<b>11 years or more</b>				
Low earnings	0.008	0.199	0.190	0.283
Medium earnings	0.666***	0.230	-0.162	0.536
High earnings	1.143***	0.238	-1.299**	0.634

\* Indicates significance at the 10% level.

\*\* Indicates significance at the 5% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

The difference models (Table 9) to some degree further verify what is apparent in Figures 4a to 4g in terms of the slopes, but also seem to point out the sample size limitations finally being pressed up against as the data are sliced by earnings level. There are no statistically significant coefficients except for the greater earnings gains in the pre-departure years for the highest-earnings group that left for two years. This would seem to be consistent with the 'level' graphs seen above for the middle- and low-earnings groups, but suggests that there is perhaps simply not sufficient sample size to identify with any precision the positive pre-departure run-ups that seem evident in the graphs for most of the higher-earnings groups.

**Table 9 Difference model by pre-departure earnings level**

Duration of absence	Years before departure		Years since return	
	Estimate	Standard error	Estimate	Standard error
<b>1 year</b>				
<b>Low earnings</b>				
1	...	...	0.022	(0.089)
2 to 5	0.002	(0.052)	0.029	(0.052)
6 to 10	0.015	(0.068)	-0.020	(0.061)
11 or more	-0.007	(0.089)	-0.009	(0.075)
<b>Medium earnings</b>				
1			0.048	(0.120)
2 to 5	0.063	(0.057)	-0.002	(0.071)
6 to 10	0.025	(0.065)	0.003	(0.085)
11 or more	0.041	(0.086)	0.017	(0.131)
<b>High earnings</b>				
1	...	...	-0.044	(0.168)
2 to 5	0.112	(0.074)	0.020	(0.107)
6 to 10	0.082	(0.076)	-0.015	(0.145)
11 or more	0.020	(0.083)	0.069	(0.185)
<b>2 years</b>				
<b>Low earnings</b>				
1	...	...	0.107	(0.083)
2 to 5	0.021	(0.047)	0.011	(0.050)
6 to 10	0.015	(0.060)	0.015	(0.063)
11 or more	-0.016	(0.079)	-0.024	(0.083)
<b>Medium earnings</b>				
1	...	...	0.023	(0.096)
2 to 5	0.064	(0.048)	0.001	(0.056)
6 to 10	0.060	(0.055)	-0.014	(0.066)
11 or more	0.045	(0.080)	0.013	(0.088)
<b>High earnings</b>				
1	...	...	-0.019	(0.147)
2 to 5	0.115**	(0.058)	0.029	(0.092)
6 to 10	0.069	(0.058)	0.027	(0.145)
11 or more	0.037	(0.066)	0.065	(0.212)

Table 9 Difference model by pre-departure earnings level (continued)

Duration of absence	Years before departure		Years since return	
	Estimate	Standard error	Estimate	Standard error
<b>3 years</b>				
<b>Low earnings</b>				
1	...	...	0.121	(0.096)
2 to 5	-0.009	(0.052)	0.015	(0.059)
6 to 10	0.035	(0.069)	0.017	(0.076)
11 or more	0.020	(0.091)	0.057	(0.123)
<b>Medium earnings</b>				
1	...	...	0.127	(0.125)
2 to 5	0.059	(0.058)	-0.009	(0.076)
6 to 10	0.031	(0.069)	0.010	(0.100)
11 or more	0.023	(0.098)	0.028	(0.149)
<b>High earnings</b>				
1	...	...	0.102	(0.152)
2 to 5	0.091	(0.060)	0.013	(0.096)
6 to 10	0.055	(0.059)	-0.047	(0.139)
11 or more	0.042	(0.071)	-0.104	(0.281)
<b>4 years</b>				
<b>Low earnings</b>				
1	...	...	0.028	(0.134)
2 to 5	0.006	(0.070)	0.035	(0.081)
6 to 10	-0.005	(0.084)	0.044	(0.101)
11 or more	0.017	(0.117)	0.024	(0.151)
<b>Medium earnings</b>				
1	...	...	-0.007	(0.186)
2 to 5	0.044	(0.077)	-0.004	(0.117)
6 to 10	0.058	(0.083)	-0.019	(0.171)
11 or more	0.020	(0.132)	-0.003	(0.290)
<b>High earnings</b>				
1	...	...	0.022	(0.198)
2 to 5	0.079	(0.081)	0.077	(0.133)
6 to 10	0.037	(0.080)	-0.068	(0.214)
11 or more	0.040	(0.107)	0.111	(0.396)



**Table 9 Difference model by pre-departure earnings level (continued)**

Duration of absence	Years before departure		Years since return	
	Estimate	Standard error	Estimate	Standard error
<b>5 years</b>				
<b>Low earnings</b>				
1	...	...	-0.014	(0.142)
2 to 5	-0.032	(0.075)	0.045	(0.099)
6 to 10	-0.007	(0.089)	-0.075	(0.148)
11 or more	0.025	(0.138)	0.057	(0.302)
<b>Medium earnings</b>				
1	...	...	0.030	(0.194)
2 to 5	0.067	(0.088)	-0.059	(0.117)
6 to 10	0.025	(0.099)	0.099	(0.161)
11 or more	0.035	(0.145)	0.017	(0.400)
<b>High earnings</b>				
1	...	...	0.040	(0.270)
2 to 5	0.096	(0.101)	0.058	(0.171)
6 to 10	0.051	(0.101)	0.132	(0.333)
11 or more	0.021	(0.152)	...	...
<b>6 to 10 years</b>				
<b>Low earnings</b>				
1	...	...	0.101	(0.118)
2 to 5	0.014	(0.057)	0.043	(0.077)
6 to 10	-0.011	(0.082)	-0.029	(0.113)
11 or more	0.017	(0.171)	0.053	(0.290)
<b>Medium earnings</b>				
1	...	...	0.072	(0.179)
2 to 5	0.069	(0.064)	0.027	(0.123)
6 to 10	0.035	(0.075)	-0.064	(0.218)
11 or more	0.048	(0.156)	0.458	(0.700)
<b>High earnings</b>				
1	...	...	0.123	(0.220)
2 to 5	0.099	(0.065)	0.007	(0.150)
6 to 10	0.062	(0.069)	0.062	(0.345)
11 or more	0.016	(0.114)	...	...

**Table 9 Difference model by pre-departure earnings level (concluded)**

Duration of absence	Years before departure		Years since return	
	Estimate	Standard error	Estimate	Standard error
<b>11 years or more</b>				
<b>Low earnings</b>				
1	...	...	0.029	(0.270)
2 to 5	0.001	(0.129)	-0.001	(0.187)
6 to 10	0.129	(0.233)	0.164	(0.779)
11 or more	...	...	...	...
<b>Medium earnings</b>				
1	...	...	-0.125	(0.626)
2 to 5	0.051	(0.144)	0.095	(0.514)
6 to 10	0.018	(0.218)	...	...
11 or more	...	...	...	...
<b>High earnings</b>				
1	...	...	-0.502	(0.649)
2 to 5	0.086	(0.148)	-0.056	(0.609)
6 to 10	0.020	(0.215)	...	...
11 or more	...	...	...	...

... not applicable

\*\* Indicates significance at the 5% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

These results hold with the difference model which embodies the more direct tests (i.e., the mover and after-return specification), the results which are shown in Tables 10a and 10b: very little in the way of statistically significant results anywhere.

**Table 10a Difference model by pre-departure earnings level, mover and after-return specification**

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
<b>1 year</b>				
Low earnings	0.002	(0.052)	0.026	(0.069)
Medium earnings	0.063	(0.057)	-0.052	(0.084)
High earnings	0.112	(0.074)	-0.110	(0.117)
<b>2 years</b>				
Low earnings	0.021	(0.047)	0.015	(0.064)
Medium earnings	0.064	(0.048)	-0.058	(0.068)
High earnings	0.115**	(0.058)	-0.100	(0.098)
<b>3 years</b>				
Low earnings	-0.009	(0.053)	0.053	(0.073)
Medium earnings	0.059	(0.059)	-0.032	(0.088)
High earnings	0.091	(0.061)	-0.052	(0.102)
<b>4 years</b>				
Low earnings	0.006	(0.070)	0.027	(0.099)
Medium earnings	0.044	(0.078)	-0.049	(0.126)
High earnings	0.079	(0.081)	-0.019	(0.137)
<b>5 years</b>				
Low earnings	-0.032	(0.076)	0.058	(0.111)
Medium earnings	0.067	(0.089)	-0.103	(0.135)
High earnings	0.096	(0.102)	-0.043	(0.177)
<b>6 to 10 years</b>				
Low earnings	0.014	(0.058)	0.046	(0.087)
Medium earnings	0.069	(0.065)	-0.027	(0.121)
High earnings	0.099	(0.065)	-0.055	(0.141)
<b>11 years or more</b>				
Low earnings	0.001	(0.129)	0.008	(0.202)
Medium earnings	0.051	(0.144)	-0.044	(0.424)
High earnings	0.086	(0.149)	-0.351	(0.470)

... not applicable

\*\* Indicates significance at the 5% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.



**Table 10b Difference model by pre-departure earnings level, mover and after-return specification — With aggregation by duration of departure**

Duration of absence	Mover		After return	
	Estimate	Standard error	Estimate	Standard error
<b>1 year</b>				
Low earnings	0.002	(0.052)	0.026	(0.069)
Medium earnings	0.063	(0.057)	-0.052	(0.084)
High earnings	0.112	(0.074)	-0.110	(0.117)
<b>2 to 5 years</b>				
Low earnings	0.002	(0.029)	0.035	(0.040)
Medium earnings	0.060*	(0.031)	-0.054	(0.046)
High earnings	0.098***	(0.035)	-0.062	(0.059)
<b>6 to 10 years</b>				
Low earnings	0.014	(0.058)	0.046	(0.087)
Medium earnings	0.069	(0.065)	-0.027	(0.121)
High earnings	0.099	(0.065)	-0.055	(0.141)
<b>11 years or more</b>				
Low earnings	0.001	(0.129)	0.008	(0.202)
Medium earnings	0.051	(0.144)	-0.044	(0.424)
High earnings	0.086	(0.149)	-0.351	(0.470)

... not applicable

\* Indicates significance at the 10% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

Finally, the pre-departure versus post-return difference shift models also generally verify what has been reported above (Table 11). The only significant increases—indicating a ‘ratchet effect’ from the last full year before leaving to the first full year back—are for the low earnings groups who were away one, two or three years.<sup>22</sup>

22. The results by pre-departure earnings level might potentially represent a regression to the mean process, but the general patterns of both pre-departure and post-return earnings levels and slopes do not seem to point to this in any consistent manner. Testing such a proposition is, furthermore, problematic, since the way in which one would classify non-movers into comparable low-, middle-, or high-earnings categories is unclear: non-movers do not have pre-departure earnings as movers do.

**Table 11 Pre-departure–post-return difference models by pre-departure earnings level**

Duration of absence	Estimate	Standard error
<b>1 year</b>		
Intercept	0.076***	(0.004)
Low earnings	0.263**	(0.111)
Medium earnings	-0.139	(0.142)
High earnings	-0.261	(0.194)
<b>2 years</b>		
Intercept	0.083***	(0.005)
Low earnings	0.209*	(0.111)
Medium earnings	-0.025	(0.120)
High earnings	-0.279	(0.165)
<b>3 years</b>		
Intercept	0.084***	(0.005)
Low earnings	0.245*	(0.136)
Medium earnings	-0.134	(0.162)
High earnings	-0.211	(0.184)
<b>4 years</b>		
Intercept	0.105***	(0.005)
Low earnings	0.247	(0.185)
Medium earnings	0.002	(0.242)
High earnings	-0.088	(0.250)
<b>5 years</b>		
Intercept	0.134***	(0.006)
Low earnings	0.314	(0.212)
Medium earnings	-0.022	(0.268)
High earnings	-0.175	(0.346)

\* Indicates significance at the 10% level.

\*\* Indicates significance at the 5% level.

\*\*\* Indicates significance at the 1% level.

Source: Statistics Canada, Longitudinal Administrative Database, 1982 to 2003.

## VI. Conclusion

This paper has exploited the unique combination of attributes of the tax-based Longitudinal Administrative Database to provide empirical evidence on the earnings patterns of those individuals who leave Canada, spend some time out of the country, and then return. Are the earnings profiles—levels and growth rates—of movers different from those of non-movers? If so, in what way? Do

they, in particular, indicate that leaving the country for a period of time might be a good investment in a person's career? Does any such benefit depend on how long individuals were away or their general earnings levels?

Overall, the data indicate that movers have substantially higher earnings levels in any given year than non-movers, and this appears to be particularly true for those who leave the country for greater numbers of years. But these higher earnings levels generally hold in the pre-move years as well as in the post-move years, thus forcing us to probe more deeply for any actual shifts in earnings profiles associated with leaving and coming back to the country.

And here the findings are more mixed. In the initial detailed analysis, in some cases the post-return earnings *levels* of movers are (relatively) higher than they were before their departure (after taking into account the natural growth in earnings that occurs with age—which is a control variable in all the models), but in other cases they are not. The patterns appear to be non-linear, with those away the shortest and longest periods not doing as well as those away a middle period of time (e.g., two to five years). The effects of moving on the *growth* in individuals' earnings, as observed in the patterns of earnings levels over time and estimated more directly with a set of difference models, are even more mixed. The *shift effects* estimated as the change in movers' earnings from the last full year in the country to the first full year back are even less decisive, with no statistically significant differences found.

It is only when the models aggregate observations across individuals away different numbers of years and across a number of years before departure and after coming and when the increases in earnings are tested directly that more categorical findings emerge, even as some precision is necessarily lost with such an approach. Overall, those who left the country two to five years are estimated to have approximately 12% higher earnings in their first five years back relative to their last five years before leaving (again after accounting for the normal growth in earning associated with ageing as well as the other factors that affect earnings as represented by the regressors included in the models). The effects are estimated to be smaller for those who leave for just one year, and appear to be negative for those away 6 years or more, especially for those who left for more than 10 years. Furthermore, these appear to be 'shift' rather than 'slope' effects, since earnings growth rates do not seem to be any greater in the post-return period than before leaving the country.

Breaking these results down by pre-departure earnings level generates the perhaps surprising result that the gains seem to be concentrated among those at lower earnings levels to start with (i.e., less than \$60,000), while those at the highest earnings levels (i.e., above \$100,000) experienced small and more uneven gains, although such individuals appear to have sharper increases in earnings in the *pre-departure* period.

The general conclusion of this paper is, then, that there appear to be only 'limited' or 'moderate' benefits associated with leaving the country and then coming back in terms of post-return earnings levels and earnings growth rates, and to the degree such benefits do exist, they appear to be greatest among those who leave for only a relatively small number of years, and among those at lower-earnings levels. Perhaps we should not be surprised at such a finding for a couple of reasons. Most importantly, it is possible that those who return to Canada over-represent those who did not fare well in the countries to which they went or otherwise under-represent the later earnings levels of movers, and hence lead to under-estimates of the benefits associated with leaving more generally (i.e., as compared to what we might find were those who did not come back included in the analysis)—although why such "under-achieving" individuals would be more likely to return than



others would have to be explained (or, ideally, empirically established – with such individuals even included in any broader analysis that was then carried out). . In any event, it has more often been supposed that being away and then coming back would be associated with (strong) positive earnings effects, which would in turn possibly help explain why some Canadians do leave the country (and then come back) – i.e., “the Globerman hypothesis” and the principal value of this analysis is to have provided some solid empirical evidence on this particular aspect of Canadians’ patterns of international mobility.

Further work could go in a variety of ways. Models could be estimated for different, even more specific groups of workers, such as for individuals of particular age groups, those living in specific regions, or persons who speak one or the other of the official languages. Other extensions could be imagined. In the meantime, this paper has provided new and original evidence on the mobility of the international mobility of Canadians and the associated earnings patterns.

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